NOVEMBER 10, 1945

Railway Age

Founded in 1856

THE LIBRARY OF CONGRESS SERIAL RECORD
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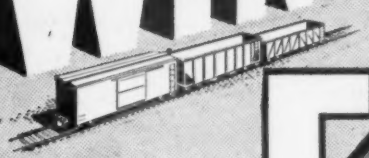
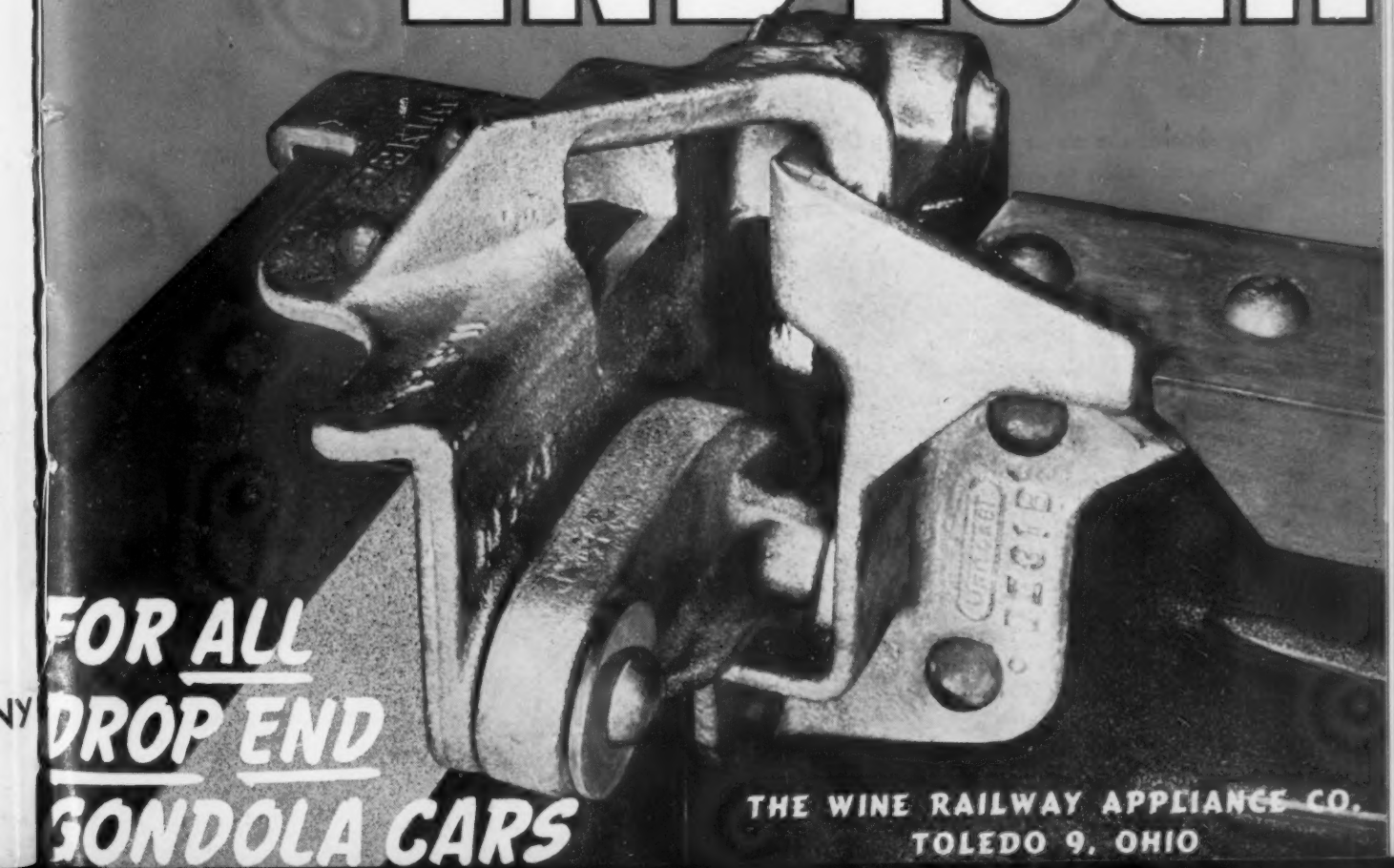
Interlocking

WINE



DROP END LOCK

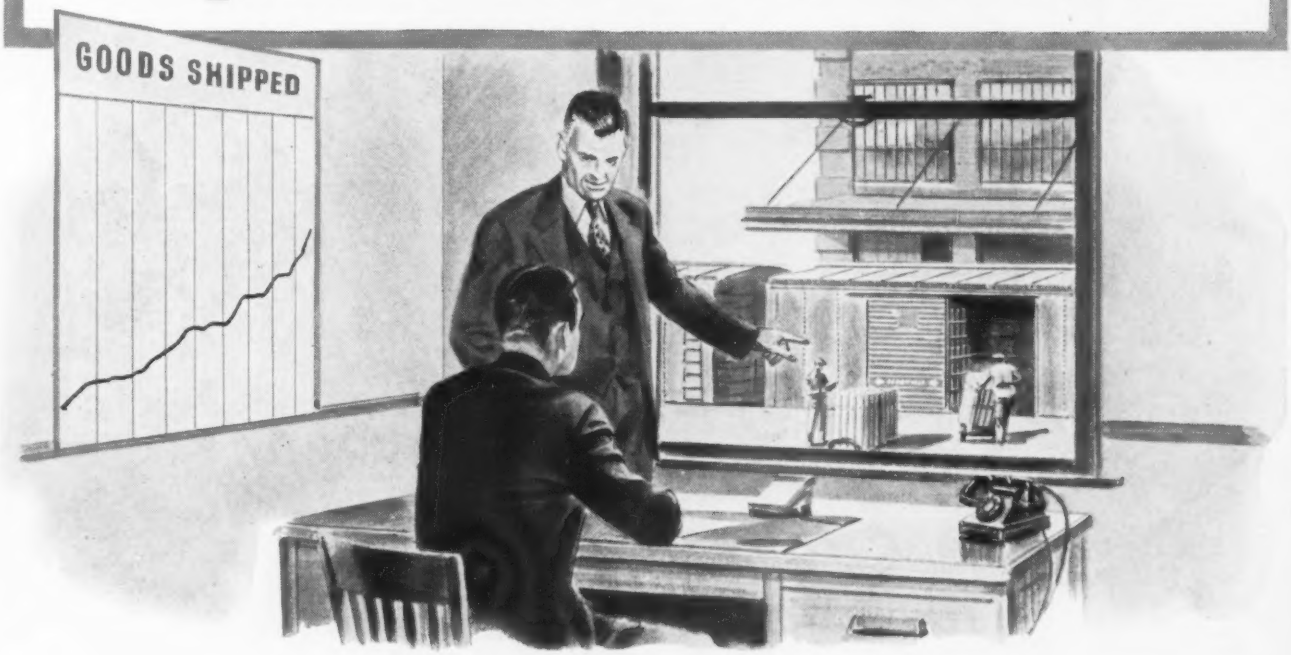


FOR ALL DROP END GONDOLA CARS

THE WINE RAILWAY APPLIANCE CO.
TOLEDO 9, OHIO

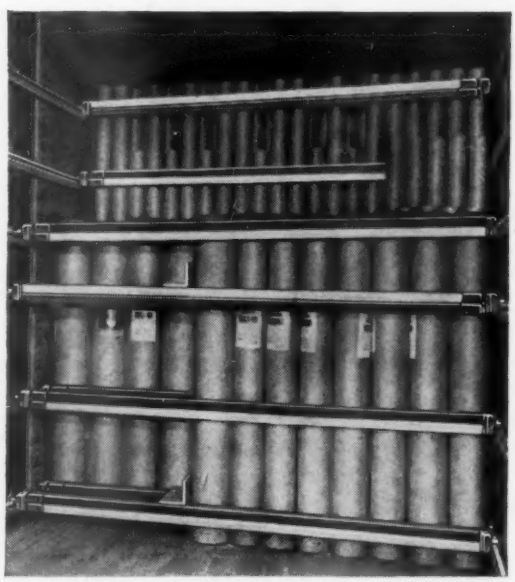
MORE FREIGHT PER CAR

for America's Most Dependable Carrier—The Railroad



—with Evans Utility Loader

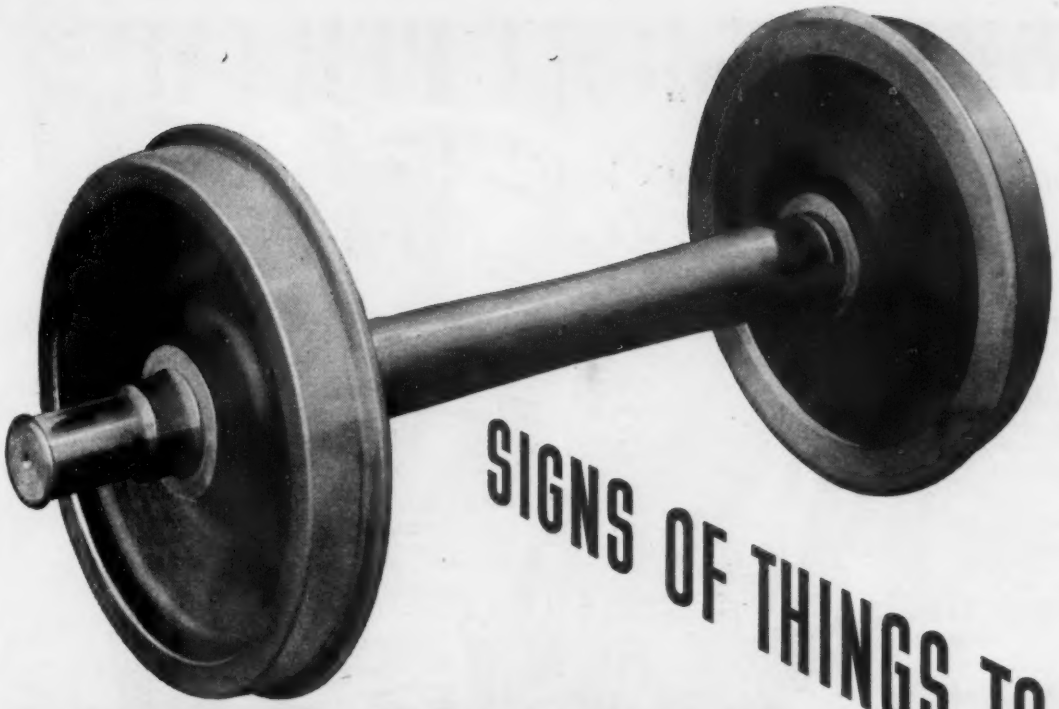
One of the major problems of industry is getting merchandise to the point of sale . . . and getting it there in perfect condition. The Evans general purpose Utility Loader, installed in ordinary freight cars, can help the railroads speed their part of the job . . . by increasing payload 30% to 200%, and eliminating damage. Shipments are protected against damage by locking the load safely in place —no matter what its size and shape. Turn-around is speeded up and maintenance greatly reduced. Write for a copy of the Evans Manual and discover the manifold advantages of the general purpose Utility Loader.



EVANS PRODUCTS COMPANY
DETROIT 27, MICHIGAN

"U" FOR THE GOOD OF THE RAILROADS

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 119, No. 19.



SIGNS OF THINGS TO COME

According to recent predictions, the coming era will witness a great increase in the use of steel wheels for freight cars.

This trend, of course, is hardly new. For two decades, the advantages of wrought-steel wheels have been growing more and more apparent. Never have these advantages been so marked as they are today.

Bethlehem is a veteran manufacturer of wrought-steel wheels for freight, passenger, and locomotive service. The Bethlehem manufacturing process, combining both forging and rolling, imparts to a wheel those qualities demanded by modern high-speed transportation; namely, ruggedness and long life.

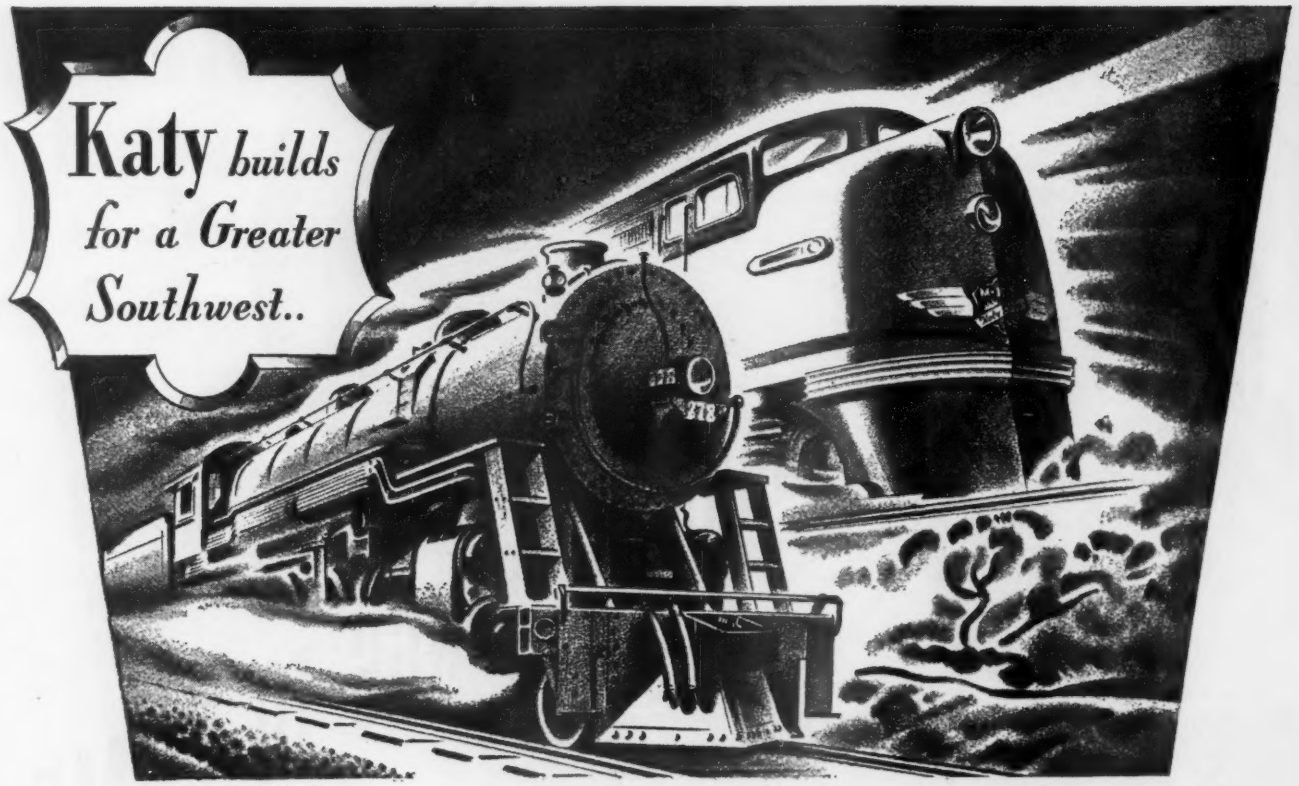
When you plan to equip your cars with wrought-steel wheels, remember that Bethlehem has been making these wheels for years. You will find it profitable to deal with a manufacturer who "knows what the score is." After all, there is no adequate substitute for experience.

Remember, too, that Bethlehem's forged-steel axles are built to the same high standards as its wrought-steel wheels. In running gear, you will find no better combination.

★ BETHLEHEM STEEL ★

BETHLEHEM *Wrought-Steel* WHEELS

and FORGED-STEEL AXLES



The Streamliners are Coming !

No longer a drawing-board dream, Katy's new Streamliners are now in the making! Swift, smooth-rolling, strong and safe, they embody all the advanced ideas of comfort, luxury and convenience. Coaches with reclining chairs and individual lighting . . . special chair lounge cars equipped with radio, writing desks and every convenience for enjoyable travel both day and night . . . dining and lounge cars beautifully decorated and appointed . . . all Pullmans exclusively room cars, capacious and tastefully furnished . . . powerful, sleek Diesel-Electric locomotives that are quick on the get-away, deliver smooth, fluid power, get you there on clipped schedules.

Katy's new Streamliners are the climax of more than four years of property modernization in which all track, bridges, roadbed, stations, all passenger and freight equipment have been brought to peak operating efficiency.

Today Katy is ready . . . ready for the ultra-modern Diesel and Streamlined trains to be delivered as soon as built . . . ready for the future's faster freight and passenger schedules . . . ready for the mighty flow of new Industry even now finding new and greater opportunity in Katy-served territory. When *you* ship or travel to or from the Southwest, remember *Katy.*

200

M·K·T
Katy Lines

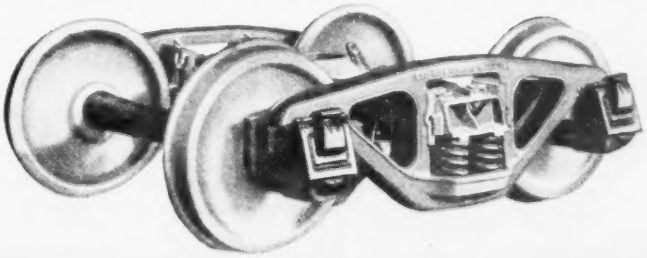
MISSOURI-KANSAS-TEXAS RAILROAD SYSTEM

Riding Ease, Safety, Low Maintenance...these are fundamental modern requirements which the A.S.F. Ride-Control Truck fully satisfies, yet this better, smoother-riding truck is in the weight and price class of conventional designs. It's the modern freight car truck for cars of all types

MINT-MARK OF ⬡ FINE CAST STEEL

Over 17,000 car sets are already in service or on order by 43 railroads and private car owners.

A·S·F *Ride-Control* TRUCK (A-3)
NO SPRING PLATES—NO SPRING PLANKS



LONG SPRING TRAVEL • CONSTANT FRICTION CONTROL

AMERICAN STEEL FOUNDRIES
CHICAGO

"The war has sharply demonstrated that the service of railroads is indispensable and that private ownership, management and operation are able and efficient. Now that the war is over, railroad plants should be modernized to take advantage of new things learned during the war years and to permit operation under new and higher standards. Railroad radio is one of these new developments, and, as a means of communication, has already been installed experimentally at several points in yard operation and its experimental use on certain sections on our main line is planned."

G. Metzman

President, New York Central System

Mr. Metzman's statement symbolizes the forward-looking thinking of top railway management today. The railroads *are* going forward, with improvements and modernization designed to increase the efficiency and safety of all types of operations.

The Farnsworth Television & Radio Corporation, through its recent acquisition of the Halstead Traffic Communications Corporation, is playing an increasingly important part in furthering these aims. Halstead Systems provide a factor of safety unique to the field of mobile communications. A radio counterpart of the closed-circuit principle, perfected during the war, is contained in the exclusive "auto-pulse" unit, standard on all Halstead equipment, whether AM or FM, space or induction type systems.

The combined talent of Farnsworth and Halstead research and engineering, together with Farnsworth's productive skills and facilities will keep in step with the railroads' growing interest in mobile communications.

For specific information, write Farnsworth Television & Radio Corporation, Dept. RA-11, Fort Wayne 1, Ind.

FARNSWORTH TELEVISION & RADIO CORPORATION

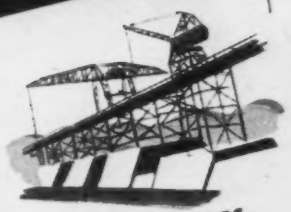
Farnsworth Radio and Television Receivers and Transmitters • Aircraft Radio Equipment • Farnsworth Television Tubes • Halstead Mobile Communications and Traffic Control Systems for Rail and Highway • the Farnsworth Phonograph-Radio • the Capehart • the Capehart-Panamuse

6 IDEAS IN STEEL

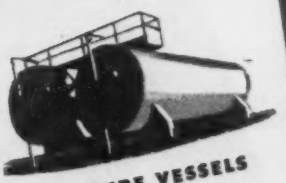
REFRIGERATOR CARS

STEEL BUILDINGS

SPECIAL STRUCTURES
Palomar Telescope Dome



DAM TRESTLES



PRESSURE VESSELS

DRUM GATES

Of the many and varied uses of steel, six are presented here to show the kind of jobs Consolidated Steel is prepared to help you plan and build now.

If your construction plans call for precision steel fabrication, Consolidated Steel is ready to offer you capable, immediate service. Address Consolidated Steel Corporation, Los Angeles 22, California; or Orange, Texas.

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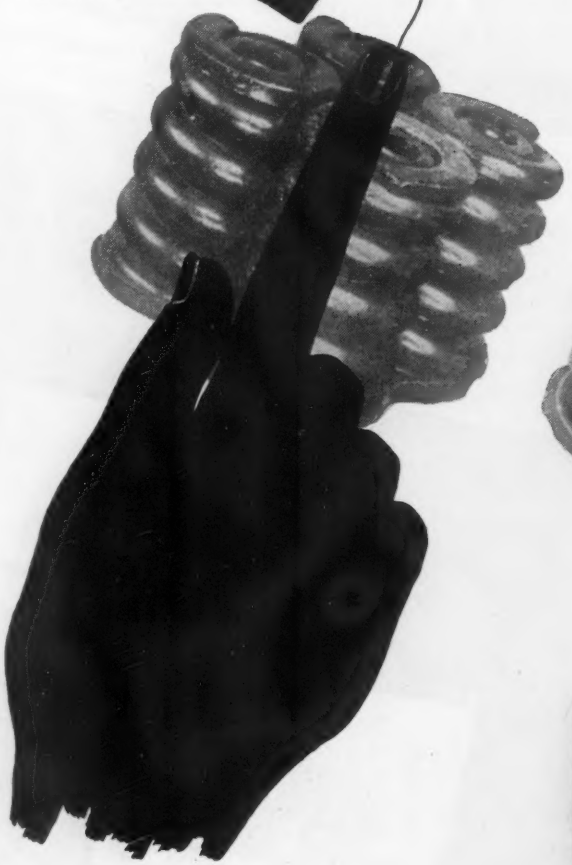
"the moving finger writes"
the story of Bolster Spring
Group Action!

This is what Oscillation Curves
prove about the movement of
your spring groups in operation.

A.A.R. STANDARD
SPRING GROUP



HOLLAND SNUBBER
SPRING AND
3 A.A.R. SPRINGS

Style A-6-A Holland Volute Snubber Springs

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1262

Rolling Steel DOORS

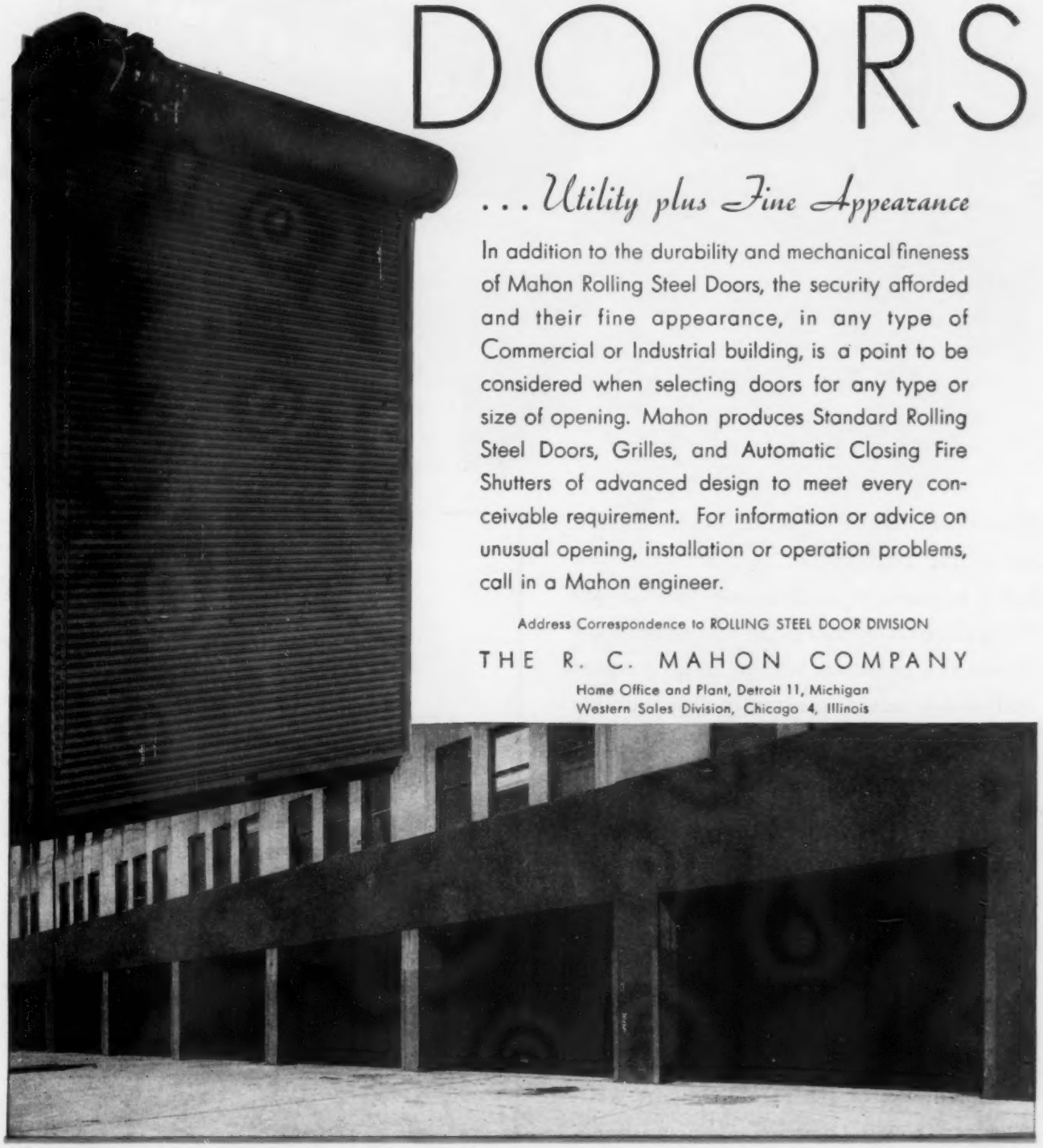
. . . Utility plus Fine Appearance

In addition to the durability and mechanical fineness of Mahon Rolling Steel Doors, the security afforded and their fine appearance, in any type of Commercial or Industrial building, is a point to be considered when selecting doors for any type or size of opening. Mahon produces Standard Rolling Steel Doors, Grilles, and Automatic Closing Fire Shutters of advanced design to meet every conceivable requirement. For information or advice on unusual opening, installation or operation problems, call in a Mahon engineer.

Address Correspondence to ROLLING STEEL DOOR DIVISION

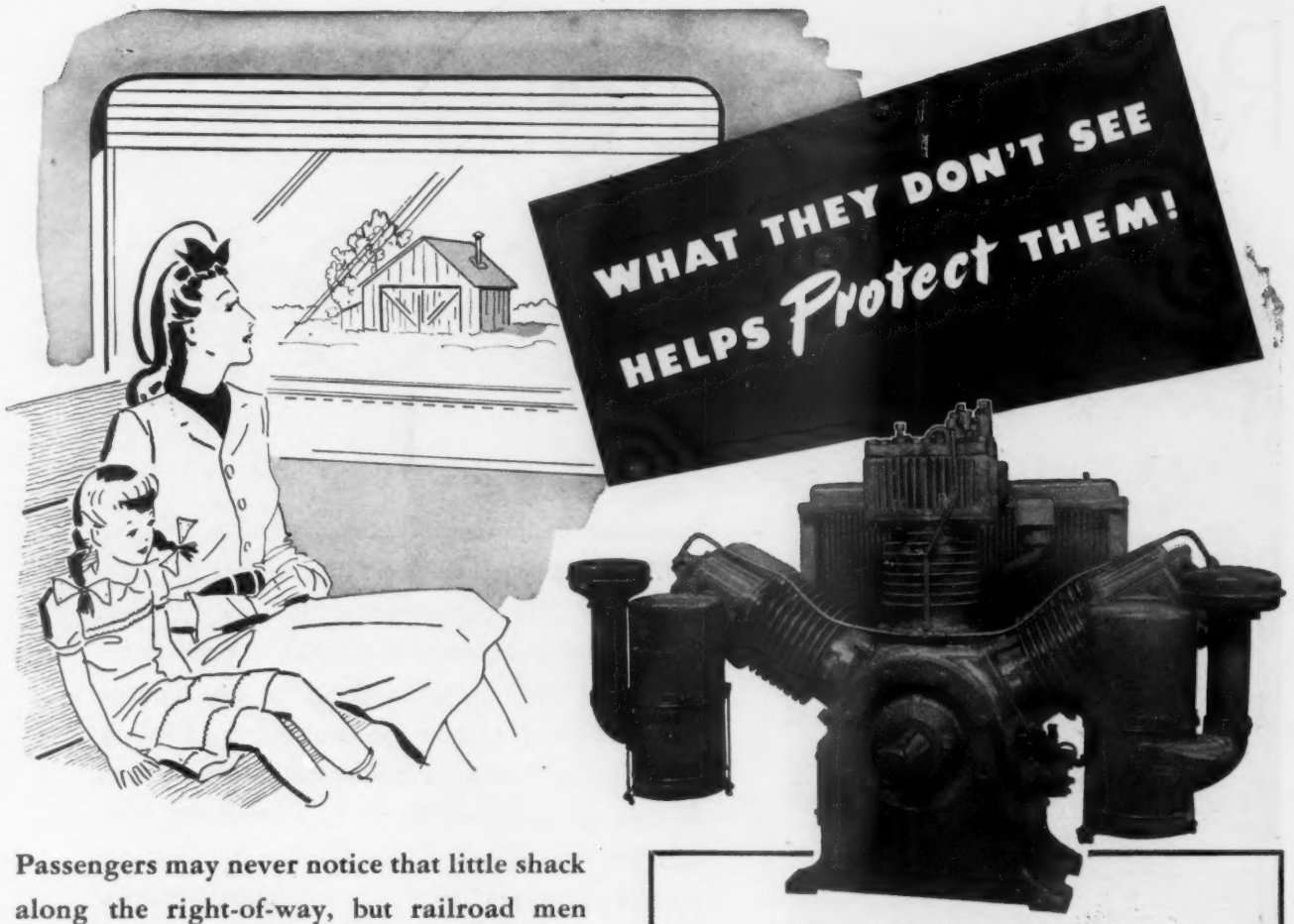
THE R. C. MAHON COMPANY

Home Office and Plant, Detroit 11, Michigan
Western Sales Division, Chicago 4, Illinois



Mahon Rolling Steel Doors installed in U. S. Appraiser's Store, Chicago, Ill. Burnham Bros., Inc. and Nimmons, Carr and Wright, Architects, Chicago.

MAHON



Passengers may never notice that little shack along the right-of-way, but railroad men know it houses a Gardner-Denver WXE Air Compressor. Day and night that compressor stands as a guardian, helping to keep signal and switch service constantly dependable—protecting safety.

Confidence—the confidence of reliable service, of minimum maintenance, is built into these Gardner-Denver WXE compressors. They have proved their case with performance in millions of miles of service on Diesel electric locomotives—in signal and switch service—in yards, shops and power plants.

For complete information about this better designed, better built compressor, write Gardner-Denver Company, Quincy, Illinois.

GARDNER-DENVER WXE AIR COMPRESSOR

EVERY FEATURE ASSURES DEPENDABILITY

- **Heavy circumferential cooling fins that eliminate cylinder distortion . . . provide extra strength and cooling service.**
- **Crankshaft mounted on Timken tapered roller main bearings.**
- **Integral counterweight and drop forged alloy steel crankshaft to assure smooth-running operation.**
- **Accurate and reliable pressure control.**
- **Air cushioned duoplate valves to prevent air leakage.**

GARDNER-DENVER *Since 1859* •

Let the RECORD Speak

FOR BOXPOK DRIVING WHEELS

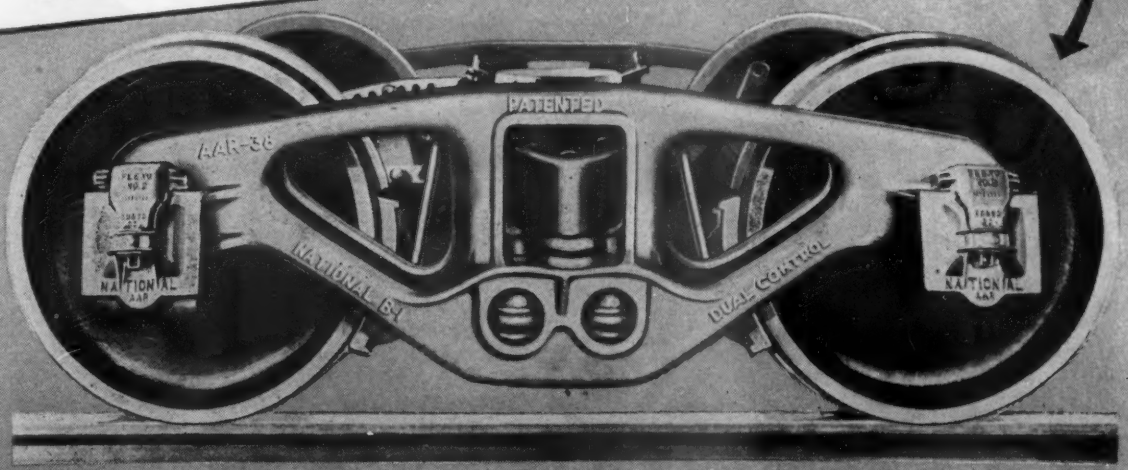
The steadily increasing number of BOXPOK DRIVING WHEEL CENTERS on the railroads of the world is convincing proof of their superior performance. Among their outstanding advantages are the following:

Greater Strength — Less Weight — Insurance Against Out-of-Round Wheels — Increased Tire Mileage — Less Maintenance Expense

GENERAL STEEL CASTINGS

Eddystone, Pa. Granite City, Ill.

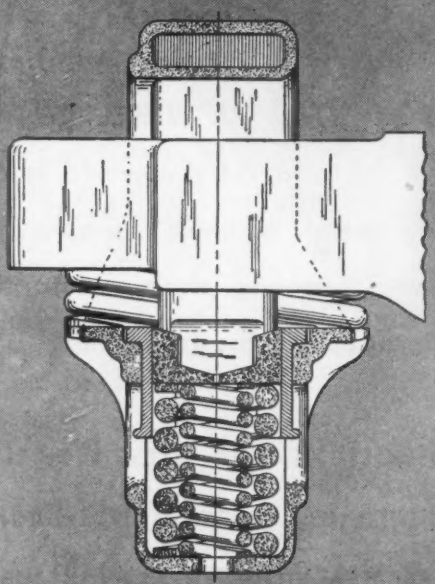
The Truck For Smooth, Safe Riding



No Spring Plank

No spring plates

Quick Wheel Change



Section thru Control Unit

A smooth riding car means less damage to lading and longer life for equipment.

The National B-1 Truck has four control units (two in each side frame) which control "spring bounce" and forces which tend to throw trucks out of square.

Cars equipped with National B-1 Trucks with Dual Control can be speeded up with Safety.

Smoother riding and Fewer Parts assure lower maintenance costs.

* * *

The truck for Post-war high-speed freight service.

National B-1 with Dual Control.

Specify National B-1 Trucks with Dual Control to keep cars "on the go"

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco.
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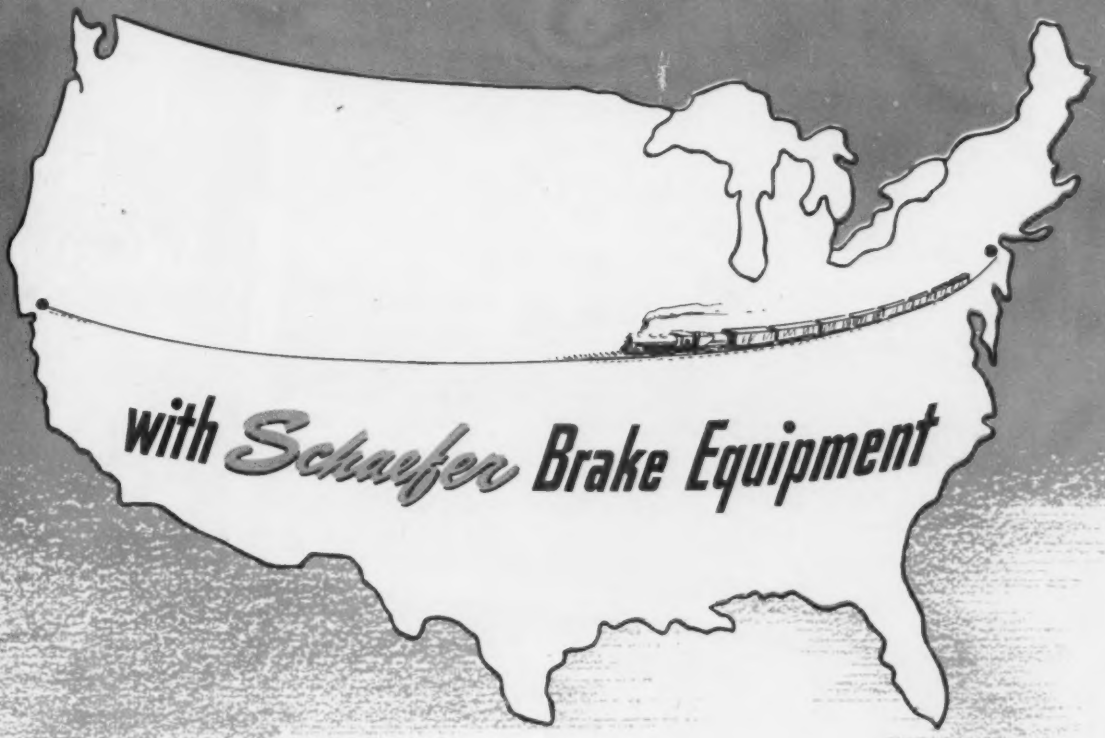
Canadian Representatives: **RAILWAY AND POWER ENGINEERING CORPORATION, LTD.,** ***Toronto and Montreal***

5000 TROUBLE-FREE MILES PER MONTH



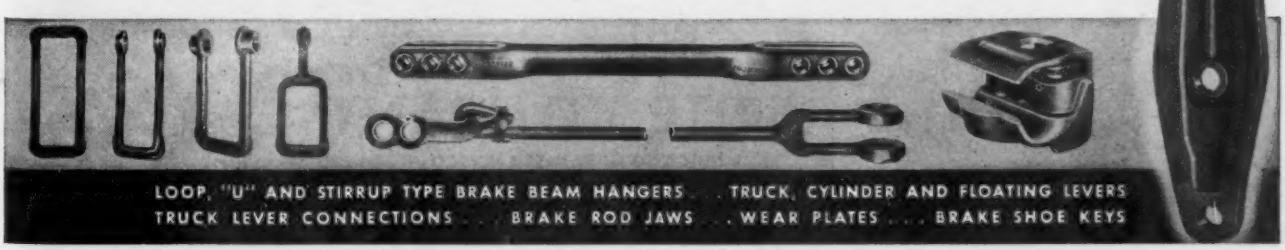
with Schaefer Brake Equipment

The general use of superior appliances by most of America's railroads accounts in part for their splendid performance records during the years of war. We are gratified that Schaefer appliances have helped make these records by keeping cars running.

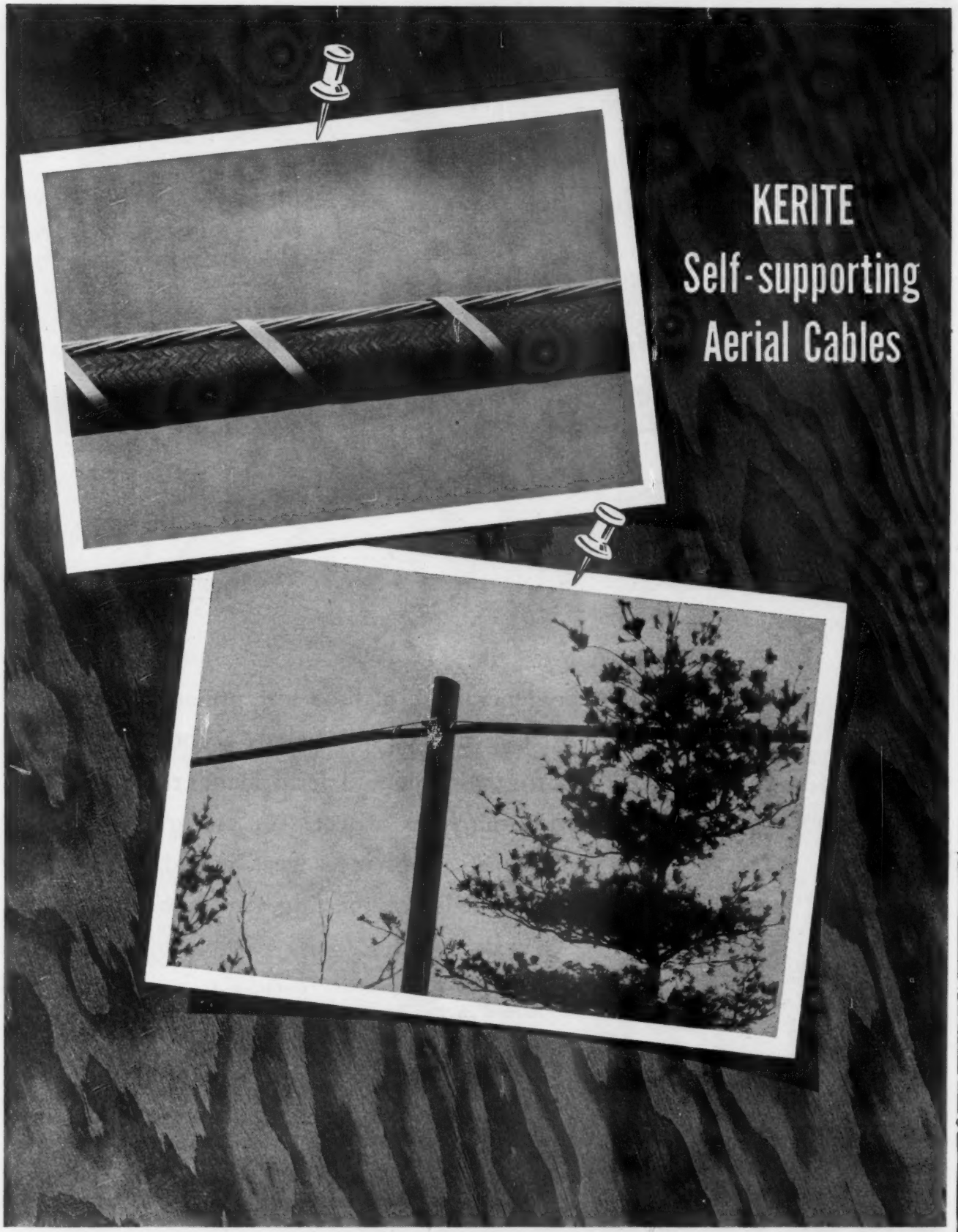
The reasons for Schaefer reliability are contained in this catalog. — Copy on request.

Schaefer EQUIPMENT COMPANY

KOPPERS BUILDING • PITTSBURGH, PA.



LOOP, "U" AND STIRRUP TYPE BRAKE BEAM HANGERS . . TRUCK, CYLINDER AND FLOATING LEVERS
TRUCK LEVER CONNECTIONS . . . BRAKE ROD JAWS . WEAR PLATES . . . BRAKE SHOE KEYS



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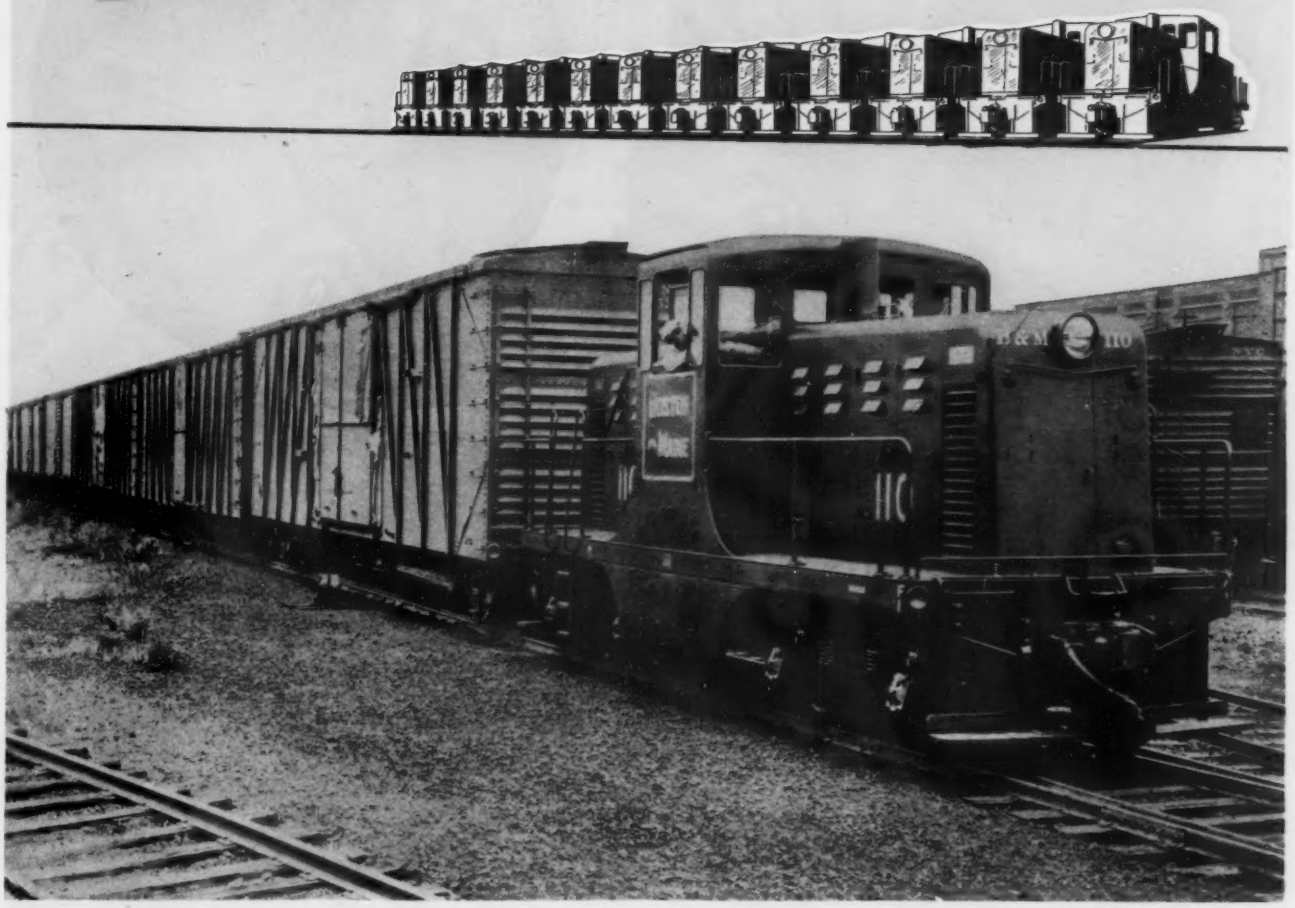
"BAKER'S DOZEN"



FORTUNATE is the road which, in these years of heavy motive power demand, has the help of one or more "Caterpillar" Diesel-powered 44-tonners. For seldom in railroad history has anything been recorded as outstanding as the all-round economy and virtual 100%-availability of these two-engine yard, main line and way-freight locomotives.

The Boston & Maine Railroad and the Maine Central Railroad Company own a full "baker's dozen" —*thirteen*. Four have been in continuous service since 1940; six since 1941-42; three—new—have just recently been delivered; and one additional locomotive has just been ordered, in September, 1945. . . . Reorders as a result of *proved performance*—that's the story there. Thorough satisfaction is similarly expressed in repeat purchases by many other of the 49 railroads using these modern, compact, powerful and dependable "Caterpillar" Diesel-powered 44-tonners.

"Caterpillar" Diesel-powered 44-tonners outnumber all others of this class 9 to 1. Write for a representative list of owners, some typical records of continuous, repairless service, together with descriptive literature on the mechanical features that enable "Caterpillar" Diesel engines to deliver such outstanding performance in locomotive installations. We will be glad to supply any further information you wish.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR *DIESEL ENGINES*

REG. U.S. PAT. OFF.

TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

The discharged veteran wears this emblem. Remember his service and honor him.

1. On New York Central System tracks near Stevensville, Ontario, two pressure tanks were used to speed up the work.

2. No slow orders here as a fast New York Central freight train interrupts pressure grouting only momentarily near Oak Harbor, Ohio.

3. The foreman can tell from the pulsations of the injection line when grout is being taken.

PRESSURE GROUTING

returns own Cost and More in Reduced Track Maintenance

A decade of use in curing soft spots in subgrades has established pressure grouting with portland cement as both an engineering and an economic success.

AN ECONOMIC SUCCESS

One major railroad is saving $2,157 per month as a result of grouting 11,882 ft. of track—a saving which continues month after month, year after year. We will be glad to tell you of many projects on different railroads where the entire cost of grouting was returned by savings in maintenance within a few months.

AN ENGINEERING SUCCESS

Pressure grouting is a simple, positive method of eliminating water pockets or soft spots and increasing the load-bearing strength of subgrades. It is a standard maintenance operation on more than twenty railroad systems.

Engineering procedure and required equipment described in illustrated folder, "*Stabilizing Railroad Track by Pressure Grouting.*" Free in United States and Canada.

PORTLAND CEMENT ASSOCIATION

Dept. A11b-26, 33 W. Grand Ave., Chicago 10, Illinois

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work

2000-Hp. DIESEL LOCOMOTIVE

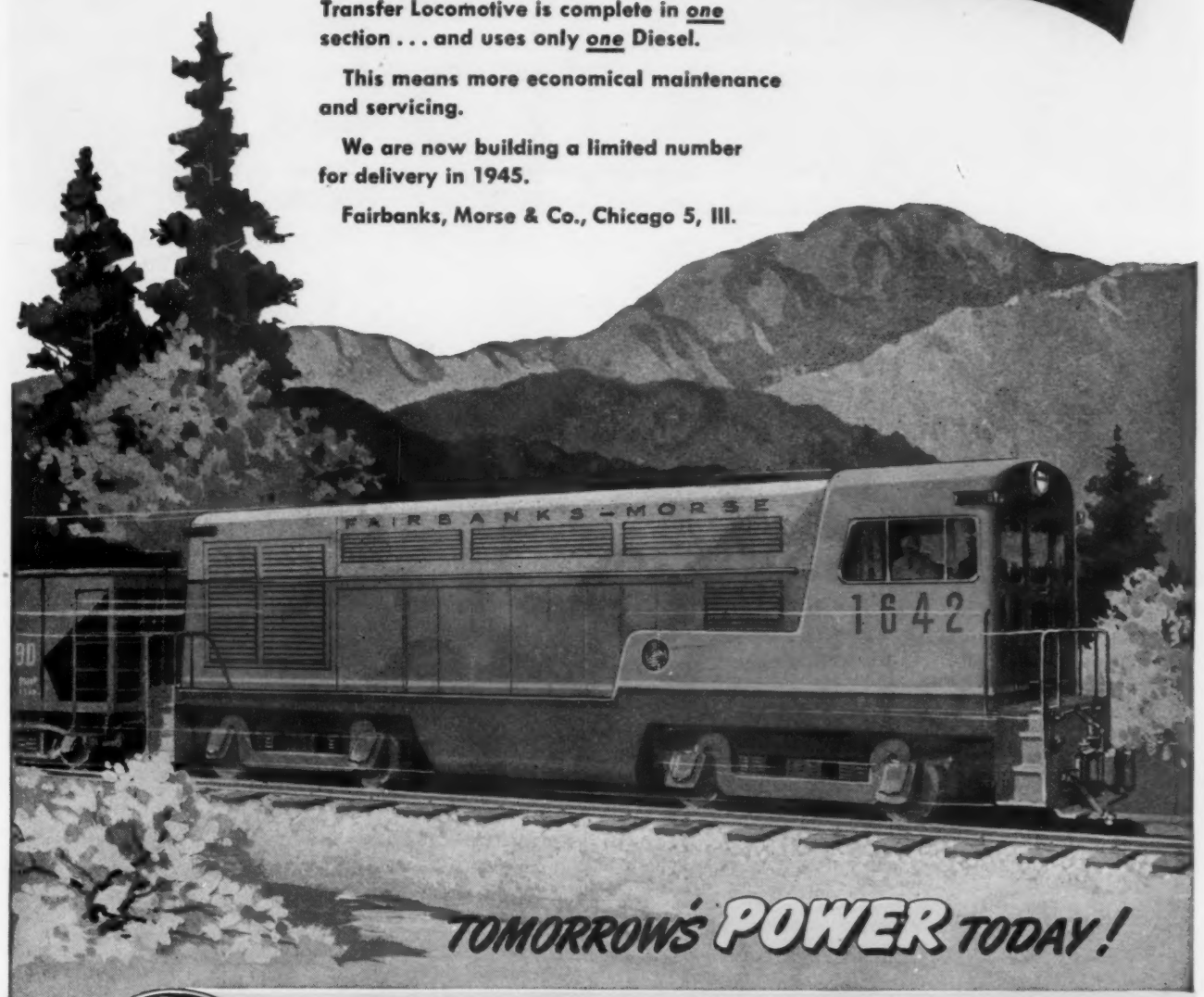
for Transfer and Short Haul Freight Service

THE Fairbanks-Morse 2000-hp. Transfer Locomotive is complete in *one* section . . . and uses only *one* Diesel.

This means more economical maintenance and servicing.

We are now building a limited number for delivery in 1945.

Fairbanks, Morse & Co., Chicago 5, Ill.



TOMORROW'S POWER TODAY!

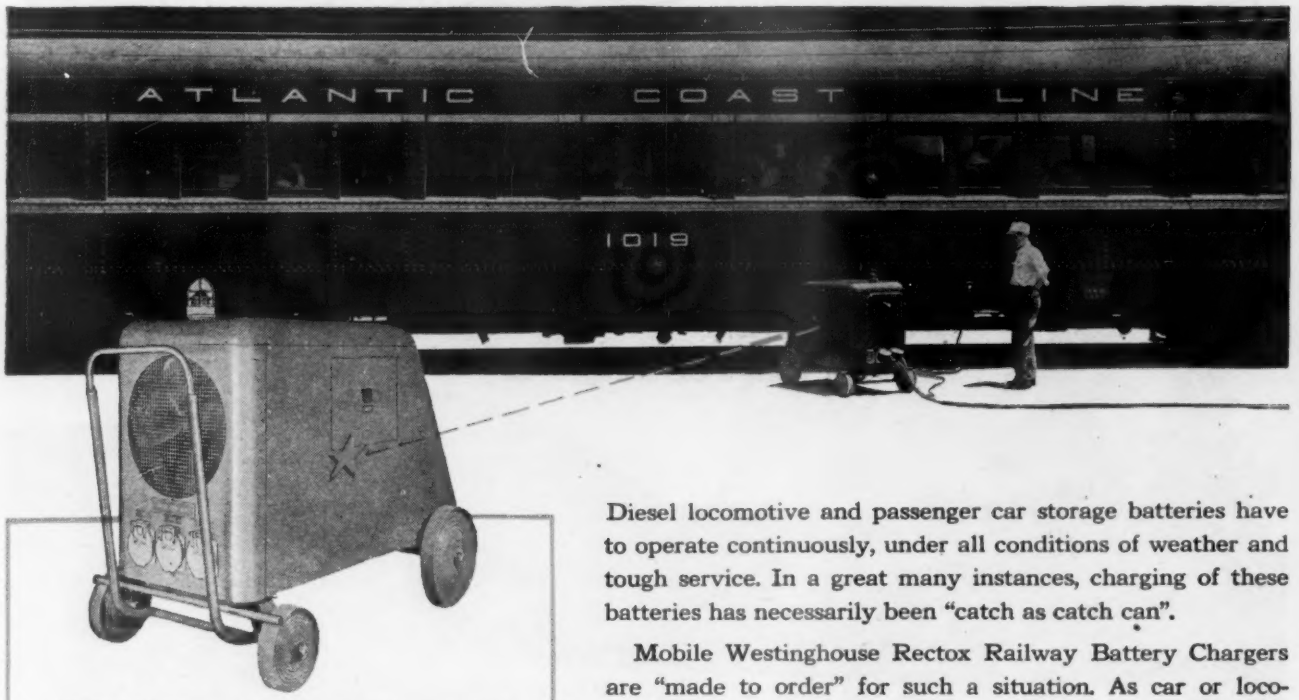
FAIRBANKS-MORSE

A name worth remembering

RECTOX BATTERY CHARGER

Meets all Trains

FOR A FULL-CHARGE *IN THE YARD* OR A BOOSTER-CHARGE ON A SHORT *"LAYOVER"*



Diesel locomotive and passenger car storage batteries have to operate continuously, under all conditions of weather and tough service. In a great many instances, charging of these batteries has necessarily been "catch as catch can".

Mobile Westinghouse Rectox Railway Battery Chargers are "made to order" for such a situation. As car or locomotive rolls to a stop, the Rectox charger is rolled up—is plugged into the 230-volt, 3-phase, 60-cycle, a-c outlet, also plugged into the battery . . . the selector and tap switches set, and the battery is immediately "on charge".

Car or locomotive *standing time* becomes Rectox *charging time*—from short boost to full seven to eight-hour charge.

The nonautomatic type is for manual control, boost charging.

The automatic type has a temperature compensated voltage relay for two-rate charging of lead-acid batteries. Nickel-Alkaline batteries are charged by the modified constant current system. An adjustable time switch automatically terminates the charge.

Another invaluable Westinghouse contribution to modern railroading, Rectox is timesaving, battery-saving and moneysaving. For complete information call your nearest Westinghouse office or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-21354

RECTOX Offers All These Advantages

ADAPTABLE—Automatic or nonautomatic types available; for either Diesel locomotives or passenger car batteries.

ROLLS FROM CAR TO CAR—Its narrow width permits use between adjoining tracks. Low center of gravity minimizes danger of tipping. Has parking brake.

DEPENDABLE AND "TROUBLE-FREE"—over an unlimited life, with low maintenance.

ECONOMICAL—High charging efficiency, particularly on 50% to 75% load, lowers power costs.

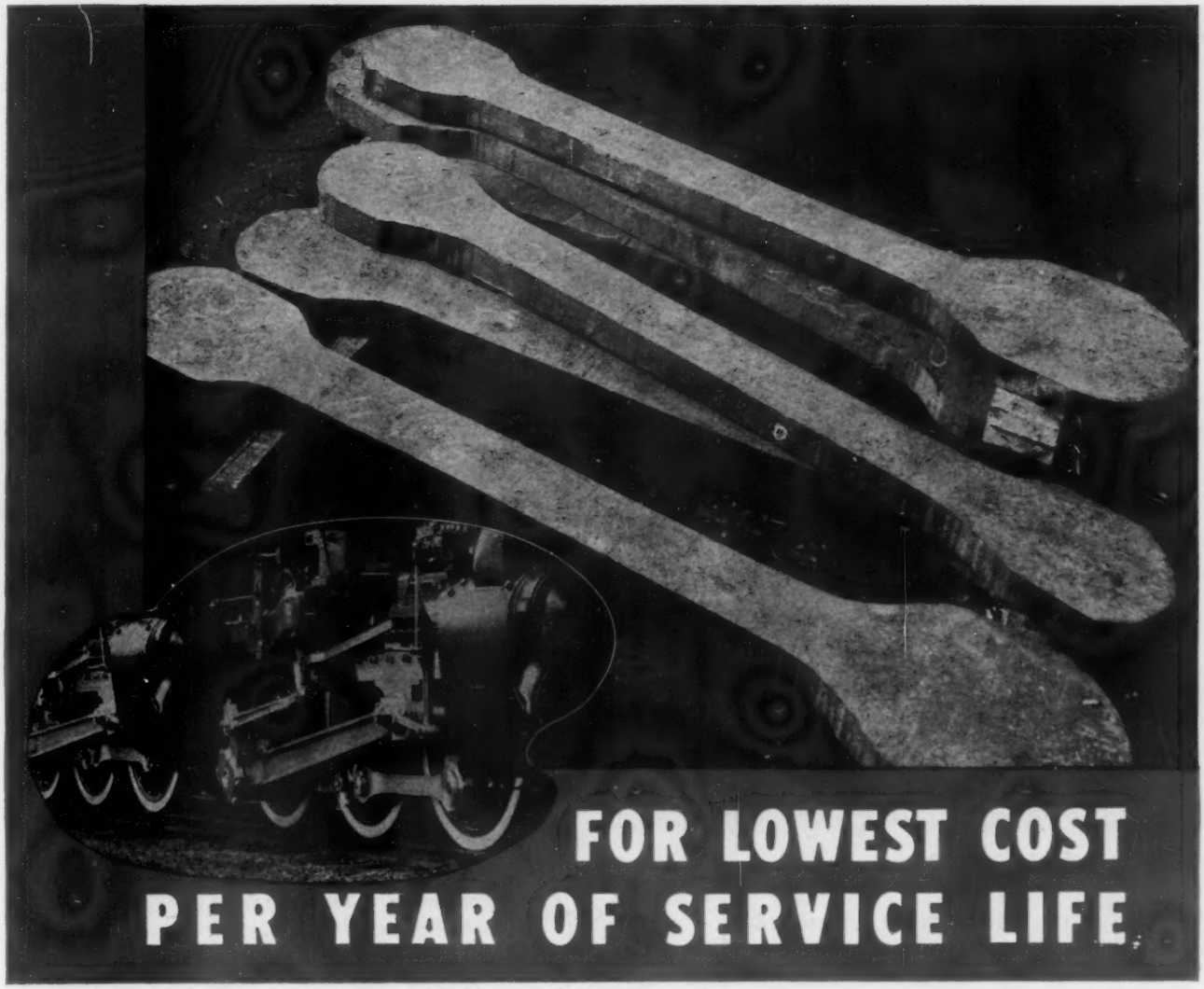
SAFE—Thermal-overload protection; battery circuit fused.

A RECTOX COPPER OXIDE DISC

The Rectox plate assembly is composed of a series of large copper oxide plates, 4⅜" x 12" assembled on an insulated bolt. Rectox Rectifiers, installed more than 16 years ago, continue to give dependable operation.

Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

Rectox **RAILWAY BATTERY CHARGERS**



FOR LOWEST COST PER YEAR OF SERVICE LIFE

—no other material can equal

ALLOY STEELS

You just can't beat alloy steels for length of service life. They continue their superior performance under adverse conditions long after ordinary steels have worn out or failed.

That's why they cost less per year of service life, even though their first cost may be higher than that of less efficient grades of steel. And that's why you should use alloy steels for locomotive side rod blanks, as shown above, and for pins, bolts, slides and other vital operating parts of railroad equipment.

Alloy steels have other qualities which recommend them for your use, too. Their high strength-to-weight ratio permits the use with safety of lighter equipment and smaller sections. Their super-toughness provides protection against severe shocks, reversal of stresses or overloading. Their uniform hardness means reduced wear. And their resistance to fatigue, heat, cold and corrosion further adds to service life.

Republic—world's leader in the production of alloy steels—is ready NOW to assist you in the most efficient and most economical application of these fine steels. Write to—

REPUBLIC STEEL CORPORATION
Alloy Steel Division • Massillon, Ohio
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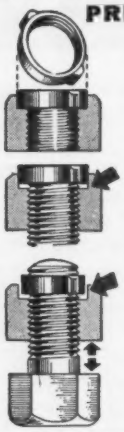
Also Carbon and Stainless Steels—Sheets—Plates—Pipe—Upson Bolts, Nuts and Rivets—Electrunite Boiler Tubes

NUT CARRIES BOLT STRESS • OVAL STEEL COLLAR DOES THE LOCKING

Replace CASTELLATED NUTS AND OTHER TYPES OF BOLT FASTENERS with Security LOCKNUTS

Safe • Economical • Handy

HOW ISOLATION LOCKING PRINCIPLE WORKS!



Security is a patented combination of ordinary nut and oval steel collar with ears, fabricated into unit by press fit of oval collar into counterbore in crown of nut.

Threads in collar are misphased so that bolt pushes collar away from *bottom* of counterbore distance of ¼ to ½ thread before engaging.

Bolt passing through oval collar forces collar into *round*, isolating it from *sides* of counterbore also. Collar is now completely isolated from nut and is tightly locked to bolt.

Nut bears entire load, leaving collar free of load stress. Nut is kept from turning by ears of collar, which is locked tightly on bolt.

RE-USE WITHOUT SELECTIVE FITTING!

Because Security's oval, spring steel collar is unusually *RESILIENT*, Security Locknut can be used and *re-used* time and again on any bolt of like size without loss of locking power, *regardless* of maximum or minimum thread diameter tolerance. No matching! Just pick up the nut and apply it with ordinary wrench on any bolt of like size and *it stays put until you take it off!*

Safe No cotter key to forget or wear through . . . No bolt tension required. Locking power *not* affected by temperature or presence of lubricants . . . No ragged projections to snag flesh or clothing . . . Vibration *can't* shake Security loose!

Economical No holes to drill . . . No extra parts to handle or store . . . No maintenance expense—can be *reused* time and again *without selective fitting* on *any* bolt of like size and regardless of thread diameter tolerance or normal wear.

Handy No fixed positions of adjustment . . . No special tools needed to install or remove . . . No extra parts to worry about!

SEND FOR FREE SAMPLE, PRICES, DATA

You are invited to *prove* to yourself at *our* expense the advantages Security Locknuts have over all other types of bolt fasteners. Send today for *free* testing samples and put them to work on your toughest assignment. Now made in National Course, National Fine, in sizes, as follows: ½ - ⅝ - ¾ - ⅞ - 1.

SECURITY LOCKNUT CORP., Dept. 1101 Chicago 5, Illinois

A SUBSIDIARY OF C. G. CONN LTD., ELKHART, INDIANA

Security LOCKNUTS

What new "armor" for steel can save America millions each year?

YEAR AFTER YEAR—in war or peace—America pays a colossal toll in dollars to a foe as unrelenting as any ever known.

It is the enemy *rust*, that attacks and destroys things made of steel. But now a remarkable new discovery can bring you steel products that will *defy* rust up to 4 times longer . . . Hardware, screens, fencing, automobiles, tractors, dozens of important items that will outlast any you've ever owned by as much as 4 to 1!

This remarkable discovery is CORRONIZING, the patented alloy "armor" that gives steel a new lease on life. Yes, CORRONIZING is new . . . but also thoroughly tested and proved. For CORRONIZING has demonstrated its overwhelming superiority in the war, under the worst possible conditions on land, at sea and in the air.

By test and performance, CORRONIZING FAR OUTLASTS OTHER PROTECTIVE COATINGS FOR STEEL. Now, the more progressive factories and retailers will be able to bring you products made of "Corronized" steel. Motor car makers—always leaders—will be among the first to offer you this sensational advantage.

Remember that name—CORRONIZING. It can save you and millions of other Americans a huge tax bill now needlessly paid to the enemy rust.

Standard Steel Spring Co.

ORIGINATORS OF

CORRONIZING

The Magic Carpet to Longer Life for Steel

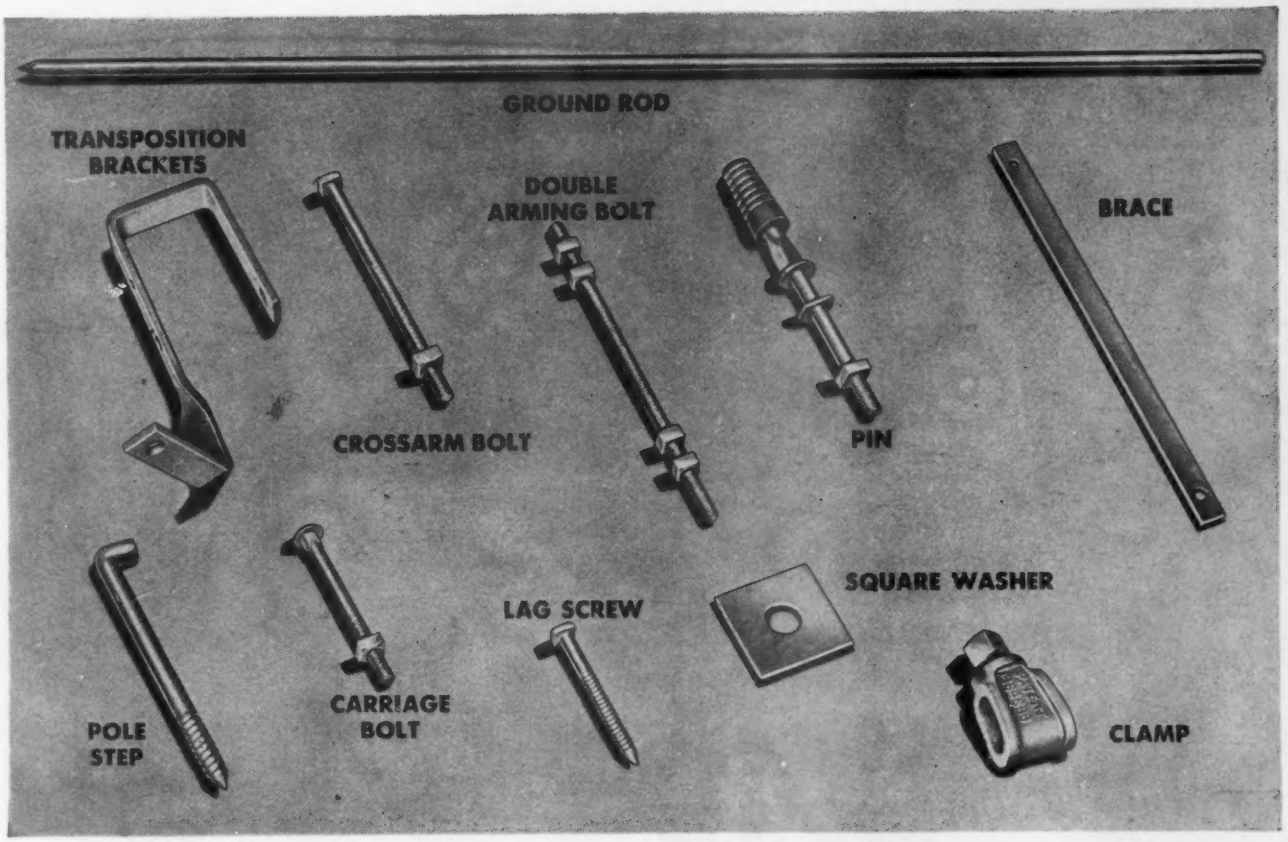
CORRONIZED
For Enduring Protection
Against Rust

Quick Facts for Manufacturing and Sales Executives

Do not confuse CORRONIZING with other metal coatings. This patented process provides a permanent alloy "armor" with 5 layers of defense against corrosion! It becomes part of the steel base . . . can be worked in any manner. Permits using lighter materials by prolonging steel's period of greatest strength. Write for samples and complete information.

STANDARD STEEL SPRING COMPANY
CORAOPOLIS, PENNSYLVANIA

HARDWARE for RAILWAY POLE LINES



As distributor of Hubbard Hardware, Graybar offers you high-quality hardware designed specifically for signal and communication lines — including special supplies for high-frequency carrier circuits. You will find the Graybar Man near you well qualified to help you select and apply the right items for your particular railway needs.

Graybar's nationwide network of warehouses, stocking all types of pole-line hardware, assures you of the fastest deliveries possible under today's conditions. Graybar is your most convenient source of supply also for poles, crossarms, copper and steel wire and strand, insulators, tools, and everything else you need for line maintenance and construction. *Graybar Electric Company, Graybar Building, New York 17, N.Y.*

4545

via GraybaR

IN OVER 80 PRINCIPAL CITIES

NOW THAT THE WAR IS OVER...
Happy days are here again!
Havana, gayest, happiest city in the Western World, is smiling a welcome . . . Mexico with its eternal sunshine and champagne-like air is beckoning with beauty, novelty and color. See them both on a magic cruise. Or visit Puerto Rico and the Dominican Republic where land and sea and sky beguile you into being a willing prisoner of these golden isles.
ENJOY A CRUISE to CUBA MEXICO PUERTO RICO and the Dominican Republic
CUBA MAIL LINE
to Cuba and Mexico
PORTO RICO LINE
to Puerto Rico and the Dominican Republic
ATLANTIC GULF and WEST INDIES STEAMSHIP LINES
Foot of Wall Street, New York 5, N. Y.

Prepared especially for this campaign by Wendell P. Colton Company (Agency for Atlantic Gulf & West Indies Steamship Lines).

How about YOUR Post-War TRAVEL ADS?

Remember "The Kid in Upper Four?" That was only *one* of the Travel Industry's many notable contributions to four years of war-effort advertising. Today, travel advertisers stand on the threshold of the day when at last their advertisements—like the one above—can say "travel now to your heart's content!"

When Americans can read travel ads like this again, chances are the million best travel customers in the land will see more of such ads in TIME than in any other magazine. In the past ten years, TIME has carried 30% more pages of travel, resort, and hotel advertising than has any other magazine.

TIME's traveled, travel-*hungry* families report they plan to travel *twice* as much as they did before the war. For instance: more than 310,000 tell us they expect to visit the Pacific and Central America; more than 88,000, South America—all within the next five years.

THE WAY TO REACH AMERICA'S MOST TRAVELED MILLION

ADVERTISING OFFICES
New York Chicago Boston
Philadelphia Cleveland Detroit
San Francisco

"... and then 'Old Claw' saved the day"

I sure came close to making a sap outa myself the day I came home. When I got off the train, there was ma and pa, tryin' not to show how much they felt like cryin' . . . and there was all the familiar old buildings . . . even the courthouse clock was fast like it always usta be. I just *couldn't* seem to swallow the orange that somehow got stuck in my throat.

The three of us, not countin' the orange, started to walk through the station, and who do I see first but old "Claw-hammer" Peterson. He's the town's best carpenter, you know. I used to work for Old Claw, and he can do more tricks with wood than an old salt I met in boot camp can do with a rope.

Old Claw must've read my mind, because he busted right in with a "when you comin' back to work, boy . . . we got ten more stations like this to fix up. Didja ever see anythin' like it . . . *real* hardwood paneling on the walls."

I hadn't noticed before, on account of the orange, but the whole inside of the station was new . . . and did it look swell!

Old Claw always did get all steamed up and proud of his jobs, and he sure hadn't changed none, because he just grabbed me and started to tell me all about the paneling, Weldwood Hardwood Plywood, he called it . . . and what a swell job you can do with it in nothin' flat.

Seems he and one helper had remodeled the whole inside of the station in less than a week. Claw says this Weldwood stuff comes in great big sheets, and all you do is nail it over the old walls.

And then, Claw says, it gets better-lookin' the older it gets . . . that's the advantage of using *real* hardwood, because it mellows with age.

He was so excited about the job that first thing I knew I was gettin' enthusiastic about Weldwood too, and forgot all about the orange.

Yes, Old Claw sure saved the day for me, because in another minute I'd been bawlin', if he hadn't come along and started tellin' me all about this Weldwood Paneling.

* * *

Weldwood Hardwood Plywoods are made in practically any domestic or imported wood you can name.

UNITED STATES PLYWOOD CORPORATION
55 West 44th Street, New York 18, N. Y.

Fast, Simple, Chemical Methods for Reconverting Machinery

Machinery that has been in constant use, machinery that has been stored away, that has been soaked in grease, needs cleaning and putting in order. Here are a few of hundreds of Turco Industrial Cleaning Compounds developed through *Surface Chemistry** to help you do that job thoroughly and best of all—*quickly*

HOW TO RINSE OFF OIL AND GREASE WITH COLD WATER

Turco Mulsine so effectively emulsifies grease and oil that they rinse off—without a trace—in cold water. Used with kerosene, Mulsine quickly cleans oil-spattered, grease-encrusted metal, quickly, safely, economically. It will not affect paint, rubber or metal. Apply Mulsine with spray, brush or mop. Rinse off in a stream of cold water

HOW TO REMOVE RUST IN ONE SIMPLE OPERATION

Turco W.O. #1 removes light rust and oil deposits from iron and steel. In one continuous operation it reconditions metal, passivates the surface and prepares it for durable rustproofing and painting. Turco W.O. #1 has such wetting action as to penetrate grooves, threads and crevices not reached by any other method.

HOW TO REMOVE PAINT IN FIVE TO TWENTY MINUTES

Turco Paint-Gon safely removes any number of coats of any finish in 5 to 20 minutes, and is flushed away with water, eliminating scraping, scrubbing, brushing. Paint-Gon is non-inflammable, and works perfectly and safely on all widely used metals. It neither warps nor raises the grain of wood. Applied by brush or spray.

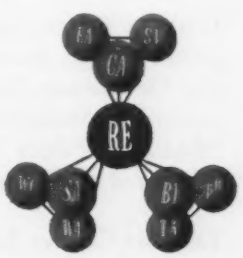
IF YOU USE STEAM CLEANING EQUIPMENT, THEN TRY THIS—

Turco Steam-Off, the steam cleaner with a bite as deep and sharp as that of a hungry bulldog. Steam-Off tackles anything – road equipment, locomotives, earth-movers, or any machinery that is deeply, thoroughly and stubbornly caked with grease, oil and adhesive dirt. Leaves no streaks, curds or water marks. Is harmless to ferrous metals.

ASK THIS MAN FOR FURTHER INFORMATION AND DEMONSTRATIONS

There's a Turco Field Representative in your territory who is experienced in modern reconversion engineering. He can tell you and show you how these and other Turco Industrial Cleaning Compounds can help you put your machinery and equipment in perfect shape—easily, economically and, remember, quickly! Write, wire or telephone Turco, Department RA-11.

THIS IS TURCO *SURFACE CHEMISTRY



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Surface Chemistry is the scientific balance and application of these cleaning factors to a specific problem.

WA—Wetting Action
EA—Emulsifying Action
SV—Saponifying Value
SA—Solvent Action
CA—Colloidal Activity
WC—Water Conditioning
BI—Buffer Index
pH—Energy of Alkalinity
TA—Total Alkalinity
RE—Research and Experience, the combining factor that puts all the above elements into balance and to work on your specific problem.

TURCO

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TURCO PRODUCTS, INC. Main Office & Factory. 6135 S. Central Ave., Los Angeles 1
Offices & Factories: 125 W. 45th St.- Chicago 9 - 1606 Henderson St., Houston 1, Texas
New York Office: 415 Greenwich St., New York 13 - Offices & Warehouses in All Principal Cities

Add Carrier Telegraph Channels

. . . ONE OR A DOZEN . . .

WITH *Lenkurt*

CARRIER EQUIPMENT

Wherever you want another telegraph channel, there's a place for Lenkurt Carrier Equipment. This modern equipment is made in individual channel units which make it possible to provide Lenkurt Carrier channels just where *and as* you need them. When one channel is all you want — *one* is all you buy!

Lenkurt Carrier equipment is equipped for a-c operation, so no special power supply is required. It provides highest quality transmission facilities for one-way, half-duplex, or full-duplex operation of any type of Morse, printer or Multiplex equipment. It actually requires less maintenance and "lining up" than the average for equivalent wire circuits! Lenkurt is the *perfected* carrier equipment you have been waiting for.

Lenkurt Carrier Equipment is backed by our complete engineering service. We are ready to consult with you on your specific problems. Get the facts NOW.

SEND FOR CIRCULAR 1664 — valuable information on Lenkurt Carrier Equipment.

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SALES CORPORATION

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Railway Age

With which are incorporated the Railway Review, the Railroad Gazette, and the Railway Age-Gazette. Name registered in U. S. Patent Office.

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Ironing Out a Crooked Mountain Line ***745***

Great Northern rids itself of sharp curvature in Spokane to Glacier Park territory, a rough mountainous section, and reduces 8-, 9-, and 10-deg. curves to 5 deg. or less.

Canada's Experience with Agreed Charges ***750***

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★

PRINTED IN U. S. A.

facing point moves at normal speeds

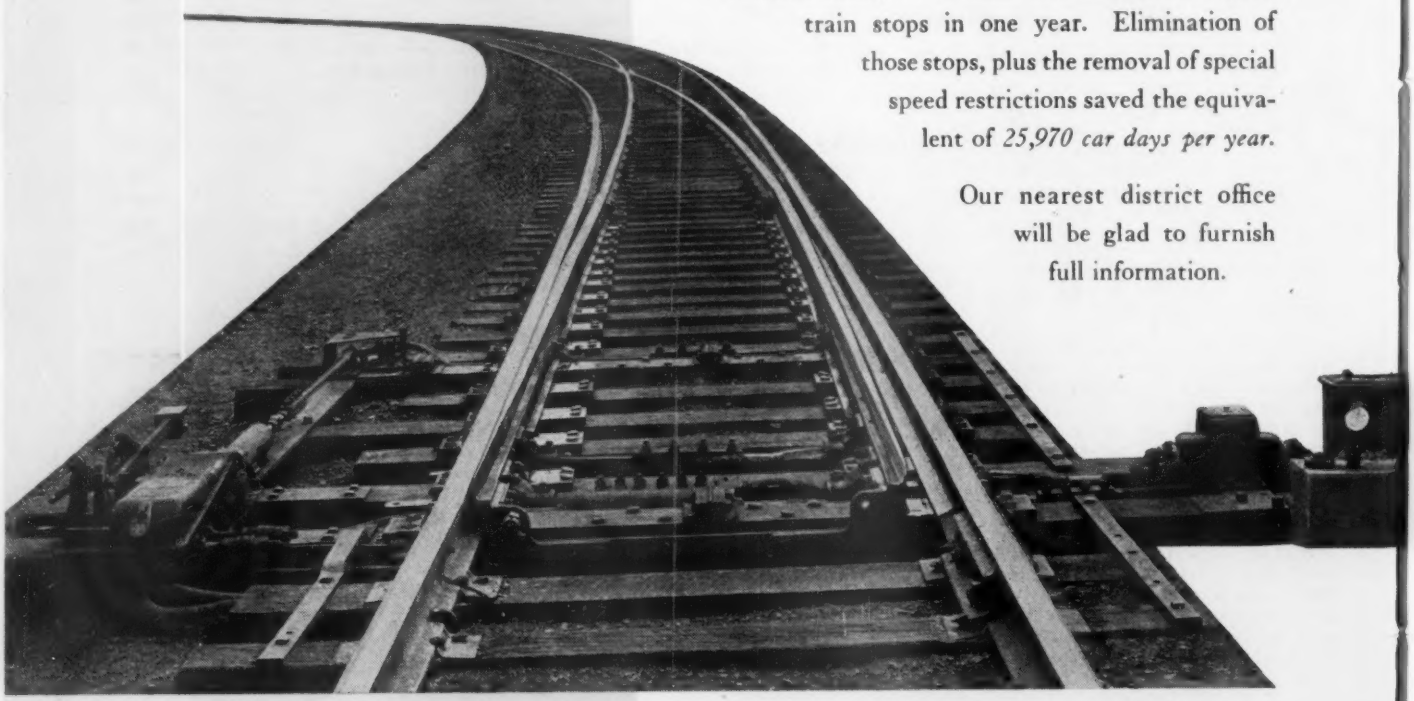
Over spring switches equipped with "UNION" S-20 and S-21 mechanical facing point locks.

Spring Switches are valuable time savers for trailing moves—and "Union" Mechanical Facing Point Locks make it possible to save that time without reduction in speed or decrease in safety for facing-point main line moves. Slow orders are not necessary, because spring switches equipped with these locks provide a degree of safety comparable to that at interlocked switches.

For facing-point moves, the "Union" Mechanical Facing Point Lock prevents opening of the points in case of a broken spring in a spring head rod, or failure of the operating rod; and guards against shifting of the points under trains.

Because of these safeguards "Union" S-20 and S-21 Mechanical Facing Point Locks have been installed in over 900 locations since 1939, resulting in an almost incalculable saving of time. On one railroad alone, 42 of these switches saved 74,277 train stops in one year. Elimination of those stops, plus the removal of special speed restrictions saved the equivalent of *25,970 car days per year.*

Our nearest district office will be glad to furnish full information.



"UNION" S-20 and S-21 Mechanical Facing Point Locks are identical except that the latter has built-in target drive mechanism.

UNION SWITCH & SIGNAL COMPANY

SWISSVALE, PENNSYLVANIA

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

The Week at a Glance

THE SAME MEDICINE: President Truman's enunciation of his wage-price program (which is analyzed in the leading editorial in this issue) may have appeared to his political advisers as being sufficient to convince an anemophilous constituency that the key to perpetual prosperity is to put more dollars into the hands of labor union members. But it represents no departure from standard New Deal philosophy which has prevailed since the genesis of N. R. A. If carried out literally, the wages of some workers might be increased temporarily, but the consequence probably would be either a sufficient rise in prices to offset the increases or a sufficient rise in unemployment to start another downward spiral into profound depression. Either way, the owners of businesses—those who provide the tools which enable union members to produce anything—would see their incomes, the profits of the businesses, further reduced or entirely wiped out. This prospect is one, of course, that dyed-in-the-wool New Dealers always have been able to face with equanimity—and perhaps with avidity—despite the fact that the outcome of such starvation treatment of capital can scarcely be anything but collectivism.

●

STRAIGHTENING THE G. N.: An illustrated feature article herein describes in some detail the work done on the Great Northern to modernize its main line through the mountains between Glacier Park, Mont., and Spokane, Wash. As with most pioneer lines in rough country, a variety of hazards to safe and efficient operation obtained in this district because many curves of 8, 9, or 10 deg. characterized the alinement. The primary purpose of the work was to develop the line to higher standards and so reduce track maintenance difficulties and eliminate conditions threatening the integrity of the roadbed, rather than to make faster train schedules possible. Altogether the project has resulted in a reduction of more than 1300 deg. of central angle.

●

SAFETY SUGGESTIONS: Practical and effective measures to reduce accidents in locomotive shops and enginehouses are discussed in an article by two members of the National Safety Council staff. Attention is focused on many of the more common practices and conditions that contribute to the occurrence of accidents, from which are developed suggested techniques and supervisory controls designed to correct or counteract these factors.

●

CLEAN-UP OPPORTUNITIES: The possibility of introducing an element of *quid pro quo* into this business of dressing up railroad properties so they give travelers favorable impressions of the communities they see is the subject of editorial comment this week. Granting that the railroads haven't been invariably good housekeepers, it's just as true that the citizens of many communities seem content to let rail travelers enjoy views of their rubbish dumps, pig yards and sewer exits, of the slovenly backsides of their poorest dwellings, and of weedy lots and decaying shacks that inspire no desire on the part of the passenger to get better acquainted with the place. On the other hand, some towns show the rail traveler their Queen Anne side—neat lawns, shady streets, well-kept homes, stores and shops and mills that advertise their owners' community pride. Shouldn't the railroads concentrate their expenditures for paint and polish, for landscaping and lighting and modernizing, in communities that belong in the latter category, or show some convincing determination to get into it?

●

THREATS OF STORM: Comment by A. A. R. officers and O. D. T. Director J. Monroe Johnson, reported herein, indicates that some shippers and railroad employees may have reached the conclusion that it is no longer necessary to keep freight cars moving at war-time rates, or to load them to war-time standards. At any rate, the average turn-around time for freight cars is about a day more now than it was before V-J Day, and that is one factor contributing to a growing anxiety about car shortages. The volume and character of complaints being received, not only by the railroads but by members of Congress and government agencies, make it impossible to avoid wondering how long the good will engendered by the railroads' war-time record will endure if a general "let down" impairs their peace-time performance.

●

LESSON FROM CANADA: The experience of the Canadian railroads with "agreed charges" or contract rates as incentives to shippers to use their services consistently is the subject of an article herein by G. Lloyd Wilson. The official procedure followed in making, approving and publishing agreed rates is outlined and the principles guiding the determination of equitable charges are commented on. While only a small number of such rate agreements have been effected so far, they apply to a substantial volume of traffic, particularly petroleum products and lumber. Their significance is affected by the fact that their application is limited to situations where regulated carriers are faced with unregulated competition, highway carriers and bulk water carriers not being subject to regulation in Canada.

●

COMMUNICATIONS TESTS: Carrier induction and space radio systems of end-to-end of train and train-to-fixed-station communication have been tested recently, under varying operating conditions, on Illinois Central's line between Freeport, Ill., and Waterloo, Iowa. The results, and the characteristics of the experimental equipment installations, are summarized in a feature article. The pole line paralleling the track was used as the carrier for the induction-type system. In the news section is noted the introduction of a bill by Senator Wheeler to give the Interstate Commerce Commission control over radio and communication installations similar to that it now exercises under the signal inspection act of 1940.

WHY FEAR "INTEGRATION"?: The principal motive behind much of the opposition to "integration" in transportation is nothing more than the fear of manufacturers of trucks and other highway equipment that they will lose some business, says the Transportation Association of America in a recent publication reviewed in this issue. Conceding that the public's interest in securing the most efficient and economical transportation that can be provided, and all industry's interest in keeping transportation under private ownership and control, aren't likely to cut much ice where the equipment builder thinks his revenues are involved, the association goes on to argue that there is no sound reason to believe that fewer highway vehicles and parts would be bought, in the long run, under the "department store" method of providing the public with transportation service. More equipment would be required, probably, because the whole idea is to vitalize competition in transportation by eliminating much of the waste inherent in uncoordinated operations and by stimulating technological improvements and extensions of service.

●

28300 ORDER STANDS: An omnibus supplemental report from the I. C. C. in the "uniform" class rate case is reviewed this week in the news pages. No evidence is seen that the commission is wavering from its determination to put the interim changes into effect, increasing class rates in Official territory and lowering them elsewhere east of the Rockies, despite the protests that decision has stirred up. The truckers got nowhere in their effort to get special treatment for l.c.l. rates, and shippers and state government units in the North were equally unsuccessful in their attempts to avert the application of the upward adjustment in that region.

●

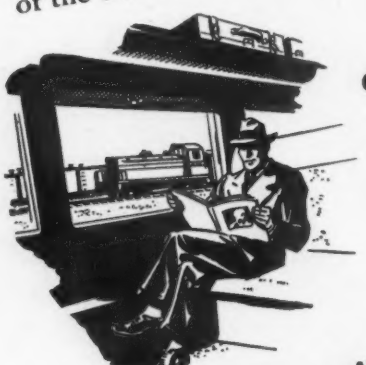
PULLMAN'S CHOICE?: Having looked over the four bids to buy Pullman's sleeping and parlor cars and operating organization, the court in Philadelphia has directed the parent company to select the buyer whose offer it prefers to accept. But a hint of further possible delay and litigation is seen in the warning that the court may elect to disagree with that selection. There is little doubt that the Justice Department's lawyers have ideas of their own about whose bid should be accepted—and, particularly, about whose bid should *not* be accepted. As usual, they appear to have discovered another foul plot of the monopolistic-minded railroads to suppress competition—and competition on the railroads is something these distinguished experts on transportation and economics are bound to fight for to their last day on the public pay roll. As noted in the news pages, Thurman Arnold, former judge and former boss of the Anti-Trust Division of the Justice Department, is among counsel representing bidders. When the hearing closed, 27 railroads had subscribed to the carriers' offer to assume the responsibility for providing sleeping car services.

IT'S A GREAT NEW DAY FOR RAILROADING

THREE-POINT COMFORT

● Comfort for the engineer

A clean cab; a comfortable seat; comparatively little manual effort; and a view of both sides of the track and ahead.



● Comfort for passengers

Smooth ride and train on time at point of departure and arrival.

● Comfort for railroad officials with an eye for economy

Experience reveals—records show—cost figures prove—economies and efficiencies possible only with General Motors Diesel locomotives.

ADD SECURITY TO VICTORY
BUY MORE VICTORY BONDS

GENERAL MOTORS LOCOMOTIVES

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS CORPORATION • LA GRANGE, ILL.

RAILWAY AGE

President Truman's Wage-Price Program

President Truman's October 30 radio address in which he outlined "your government's wage-price policy" was orthodox New Dealism from first to last—with the single exception that it was delivered without the magisterial mannerisms which Americans had grown accustomed to associating with such dicta. Mr. Truman by the inoffensiveness of his manner to some degree mollifies those who oppose the discredited doctrines he expounds—but the course he is seeking to impose on the American people is no less pernicious for being unemotionally enunciated. It has as its basis the politically cogent and logically and economically nonsensical assumption that only in the hands of organized labor does "purchasing power" promote general prosperity—ignoring the fact that the part of the economy which fluctuates most, bringing certain depression if it declines, is the capital goods industry; and activity in capital goods depends upon business *profits,* actual or prospective.

The policy President Truman has enunciated is essentially that which lay behind the N. R. A., and which persisted after N. R. A.'s extinction—a policy of which the result was to prolong until the war began a depression from which the nation was beginning to recover when N. R. A. was adopted.

Production Determines Prosperity

Production, not the level of monetary wages, has made the standard of living in all walks of life in this country the envy of the rest of the world. In China monetary wages are so high that wheelbarrows have had to be substituted for wallets to carry them around—but they will buy next to nothing, because production is low in China. It is low because there is so little invested capital; and production in America is enormous and consequently provides a comparatively high living standard even for those in humblest circumstances, because the amount of invested capital per inhabitant is so high.

America has prospered because it has more and better tools than any other country; and a continuing upward course of prosperity demands still more and still further improved tools. The principal source of these tools is business profits—which are either invested directly in machines and facilities for increasing productive efficiency, or are paid to investors in interest and dividends as a means of inducing them to provide the funds for increasing the volume and quality of the tools of production. When profits are minimized or threaten to be minimized, the kind of stalemate arises which, except for the war, has persisted through the entire regime of the New Deal; and during which there was a decline of 600,000 in railroad employment.

President Truman, in general, advocated wage increases only in those industries which could pay such increases and make adequate profits without increasing the prices of their products. If it be granted, which is extremely doubtful, that there are industries which can follow this course, a large inequity would immediately arise—in the disparity in wages between employees in industries able to increase wages without price increases and those unable to do so. In such industries as the building and garment trades, it is clear to all that wage increases must be immediately reflected in price increases. What equity, as a matter of national policy, would there be in raising the wages of, say, employees in some manufacturing establishments, and denying increases to building and garment workers? The outcome of such a policy must inevitably be for the wage increases to spread from the industries which can "afford" them to those which cannot; and the net result would be general price increases; that is, inflation which would cancel the effect of the wage increases. Either that, or if wages were to rise and prices were held firm, profits would vanish—bringing the closing down of businesses, unemployment, and stagnation of the capital goods industry, whence come the improved tools which advance productivity and living standards.

Profits Are "Purchasing Power"

The unreality and folly of the "purchasing power" theory lies in its taking for granted that only the dollar in the hands of a member of a labor union contributes anything to providing markets for the products of industry—whereas profits are looked upon as sterile in providing markets. Actually, of course, profits are either spent for consumers' goods just as wages are; or they are invested in new tools of production, which means that they are paid out as wages to those who make such tools.

Wages and prices find a natural level at which products are freely produced and exchanged, if free competition is permitted to operate and compulsion is absent. If, however, the government, in time of peace, insists on interfering with normal and healthy competition to enforce a policy of raising wages and holding down

prices, this compulsion will have to be extended soon to the entire economy "until the economic organization is finally transformed into some kind of compulsory collectivism," as President Virgil Jordan of the National Industrial Conference Board warns in an informative booklet just published by the Board under the title, "Wages During the Transition Period."

"Productivity" of R.R. Employees Is Declining

Certainly, the railroad industry is not one of those which can grant pay increases without substantial increases in charges for its service—because the railroads cannot hope to attain the volume of traffic per employee in the immediate post-war years that they handled in 1944 and in 1945 up to V-J day. The high volume of railroad traffic was reached in considerable degree because of the absence of competition, which is now coming back in full force; and the high "productivity" per employee achieved in the war years was possible only because the public tolerated a quality of service which it would not accept with competitive service available.

"Productivity" per railroad employee is, thus, on the wane; and, hence, so also is the ability of the railroads to pay higher wages. The only way in a competitive era to increase "productivity" per employee once more is to invest large sums of capital in improved tools, a course which an increase of wages under present conditions would discourage.

Crosstie Outlook Still Dark

A survey of the present and prospective labor situation in tie-producing areas holds out little hope that tie production will return to normal in 1946, although it had been thought that the recent increases in tie prices granted by the Office of Price Administration would stimulate tie production to the point where 45,000,000 ties would be available for insertion in 1947.

In general, ties that are cut in any calendar year do not become available for insertion in the track until the following year, although some ties produced during the winter months may be used before the end of the calendar year in which they were made. The reason for this is the time consumed in getting the ties from the woods to the seasoning yard; the length of the seasoning period, which may range up to six months or more; and the time required for treatment, after-seasoning, transportation and distribution.

Tie renewals for 1945, it appears, will be far below essential requirements, whether based on numerical needs or on gross ton-miles of traffic carried by the railways. Tie renewals in 1929, the year of the market debacle, were 74,679,375. From this number they declined to 37,295,716 in 1933, and then rose to 44,351,900 in 1935. During the period 1935 to 1939, inclusive, tie renewals on the Class I roads averaged 45,178,791. During the entire period from 1929 to 1939, they were consistently below requirements, despite the fact that these requirements were considerably reduced because the railways were beginning to reap the benefits of preservative treatment of their ties in earlier years, and also despite a reduction in these requirements by reason of the large-scale abandonment of unproductive lines.

Putting it another way, 57.7 ties were renewed per million gross ton-miles of freight traffic in 1929; by 1933 renewal had dropped to 47.3; in 1935 there was a slight gain to 50.3 ties; but the average for the five-year period ending in 1939 receded to 46.1. From 1940 to 1944, inclusive, there was a consistent decline in the rate of renewals per million gross ton-miles of both freight and passenger traffic, as follows: In 1940 the rate was 31 ties; in 1941, 28.3; in 1942, 23.6; in 1943, 20.1; and in 1944, 21, a slight increase, but far below the rate in most previous years.

As a result of the impact of war, tie production began to decrease alarmingly late in 1943 and this decrease has continued to the present. However, enough ties were produced in 1943 to make more ties available for 1944 than were installed in tracks in any year since 1931. Recently, the Office of Defense Transportation made a survey of the needs of all of the railways, including short-line roads, for ties for 1945, and concluded that 64,000,000 ties would be required for both replacements and new tracks.

An extension of this survey indicated, however, that only about 35,000,000 crossties will be available for replacements during 1945, which means that renewals will be on the basis of 15.5 ties per million gross ton-miles of combined freight and passenger service, as estimated for the year. This is only about 77.5 per cent of the numerical average for the 1935-1939 period, and only 44.3 per cent of the rate for the same period when compiled on the basis of gross ton-miles, which was admittedly insufficient to make up the deferred maintenance that has already accumulated, and also to keep abreast of current requirements. While it is hoped, in view of the advance allowed in the price of ties, that about 45,000,000 ties will be available in 1946, and that this number will increase to 50,000,000 in 1947, there is no assurance that this prospect will be fulfilled.

Safety in Shops and Enginehouses

A recent analysis by the National Safety Council of 515 lost-time accidents at railway locomotive shops and enginehouses re-emphasizes the importance of safety-first efforts in all departments and points an accusing finger at those practices which, over a period of time, may be counted on to cause most accidents. It is upon these practices that safety efforts should first be concentrated, since here the largest results are obtainable in the shortest time. Another major objective, of course, is to eliminate conditions leading to the more serious injuries which usually occur at relatively infrequent intervals and hence do not show up strongly in any percentage comparison. In all safety work, as demonstrated by years of experience, the urge and incentive and picture of what may be accomplished must originate in the minds of higher railway management and be successfully transmitted through local supervisors to the employees who actually do the work.

The analysis of lost-time accidents referred to indicates, as shown in an article elsewhere in this issue, that approximately 30 per cent of all accidents at locomotive

shops and enginehouses occur to men while working on or around locomotives rather than in the various subdepartments, such as the machine shop, blacksmith shop, tool room, etc. Ten per cent of all accidents occur while repairs are being made to parts under pressure, such as steam lines and fireboxes, hence the need of redoubled efforts to make sure that these parts are relieved of all pressure and, usually, drained before attempting repairs. Another nine or ten per cent of all accidents are due to falls from locomotives, which can be avoided only by unremitting attention to such details as safe footing on running boards, strong ladders, scaffolds, guard rails, etc.

Twenty-four per cent of the accidents occur in connection with the use of tools and more than half of these may be eliminated by proper attention to four specific tools, namely, bars, wrenches, hammers and jacks. Simply to mention these is enough to bring to the minds of shop and enginehouse supervisors elementary precautions which must be observed by their men if accidents with these tools are to be avoided. Injuries in connection with the operation of machine tools, such as lathes, planers, drill presses, etc., account for seven per cent of the total, so here also is a relatively large field for intensive cultivation of safe practices. Foot and eye injuries always bulk large, and safety shoes and goggles, the obvious solution, are being used far less generally than should be required.

After every mechanical aid, device and guard has been installed in the interests of safety, accidents will, of course, continue to happen without due attention to the "human element." Some men are just naturally not mindful of safety. Some are too quick and impulsive, and act without thinking; others are too slow in mental or physical reaction, or possibly are distracted by some outside condition; they do not "have their minds on their work." Whatever the cause, if it cannot be removed and if the unsafe man cannot change his ways (usually a difficult thing to do), there is only one answer and that is to remove him from any class of service in which he is a persistent peril to others as well as himself.

Why Do Towns Turn Their Backs to the Railroads?

The Saturday Evening Post recently revived the perennial question as to why most railroad stations are so poorly equipped with signs to identify to the passengers on rapidly moving trains the communities through which they pass. Such signs as are provided, the Post complains, usually employ lettering too small and placed too near the tracks to be legible from moving trains, or are tucked away under the eaves of station buildings in a manner to assure minimum visibility. These signs, almost invisible in daytime, are completely so at night, since hardly any of them are lighted.

The Post believes this situation to be a contradiction of the traditional American spirit of community pride —but, we suspect, a little further observation would disclose that the railroads' failure to facilitate easy identification of communities through which trains pass is often rather a favor to the reputation of these communities than a disservice. This follows from the fact that so many towns—perhaps even most of them—present their very worst aspect toward the railroad.

The picture comes to mind of a small New England city—enterprising, clean and attractive, alike in its residences and industrial plants, when seen from the highway; but all that greets the eye of a traveler by rail through this city is the hindermost parts of its dwellings —weeds, ashes, tin cans, garbage and worse. The railroad right-of-way seems to be the place which catches all the debris, absence of which elsewhere in the town gives it such a pleasing appearance.

In the days when the smoke nuisance on the railroads was much worse than it now is, it was, perhaps, natural that buildings near a railroad should have been made to face away from it—but, even then, there is not much excuse for people who turn their back yards into depositories for indescribable filth. The railroads are constantly beset for better station buildings by civic clubs and commercial organizations in the towns they serve —which, when conceded, are frequently wholly negatived in their impression upon visitors to the locality by the depressing back-yard scenes through which trains must pass before they reach their attractive stations.

Shouldn't there be some reciprocity in matters of appearance between the way a railroad treats a town and the manner in which the town behaves toward the railroad? If a railroad proposes to paint or improve its station or eliminate the weeds and clear away debris from its right-of-way through a community, could it not make such outlay contingent upon a parallel clean-up by adjacent property owners? If the members of the local garden club or other civic organizations were taken on a critical inspection trip once a year to show them how their town looks to travelers by rail, quite likely the pressure of public opinion would correct conditions which today are often almost nauseating.

Might not a railroad go further and make a standing and well-publicized offer to maintain a trim station and grounds with a large and well-lighted station sign at any point on its lines which will conform to parallel high standards of neatness in the aspect which the community presents to the railroad? Such an offer could hardly fail to please the people in every community who are the leaders in its economic and civic life, and could give offense only to elements whose friendship the railroads never have anyhow, and which, in any case, is worthless.

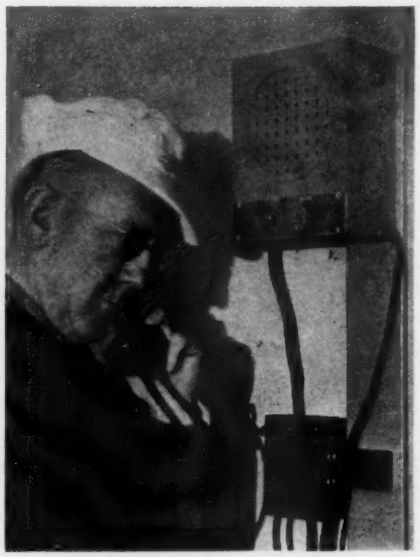
As things are now, communities which have made an effort to look well from the railroad are often not rewarded by similar neatness in the railroad's local premises—whereas the best-groomed railroad layouts are frequently adjoined by unimaginable disorder and filth. Co-operative railroad-community action could greatly advance mutual understanding among them, to their common advantage, and at the same time make train travel a more attractive experience than, too often, it is today. Nor should such action involve any great additional outlay by the railroads—requiring only the shifting of expenditures for "housekeeping" to concentrate them in localities where maximum overall improvement would result, curtailing these outlays in neighborhoods where the citizens show by their own behavior that neatness on the railroads' part is unappreciated.

Train Communication Tests on I. C.

Carrier induction and space radio systems are tested for two-way telephone service between front end and the rear of trains as well as with wayside stations

THE Illinois Central has recently completed an extensive test of train communication equipment on an engine district of 160 miles between Freeport, Ill., and Waterloo, Iowa, this being a part of a through route between Chicago and Omaha, Sioux City, Iowa, and Sioux Falls, S. D. The communication equipment used on these tests was furnished by the Aireon Manufacturing Corporation. The equipment for the rear of the train is located in a reconverted dynamometer car, owned by Aireon, but, in order to simplify the wording in the following discussion this car will be referred to as the caboose. Inductive equipment operating at 170 kilocycles was applied in these tests not only for communication between the head end and the rear of freight trains, but also between the locomotive or caboose and a total of eight wayside offices on this division. In addition, straight space radio apparatus operating at 156.525 megacycles was in service on the locomotive and the caboose, as well as at one station.

This engine district between Freeport and Waterloo was selected for the test installation of train communication because of the various local conditions, such as volume of traffic, grades, curvature, bridges, tunnels and mineral deposits that might affect operations of the apparatus. The line is single track except for 12.9 miles of double track between East Dubuque and Portage which is used also by the Chicago, Burlington & Quincy and the Chicago Great Western. On most of the district the grades are rolling. A westbound ruling grade ranging up to 0.9 per cent for 13 miles extends between Dubuque and Peosta, and an eastbound ruling grade ranging up to 0.8 per cent extends for 8 miles between Bowden and Scales Mound. The Class 2800 freight locomotives are rated at 4,800 tons eastbound. Westbound between Freeport and Dubuque the rating is 5,700 tons, and between Dubuque and Waterloo it is 4,000 tons.



L. J. Dodge, Agent, Using Radio Telephone in the Office at Jesup

The schedules include three passenger trains and four through freight trains in each direction daily, in addition to a local freight in each direction daily except Sunday. Counting extra trains, the total number of train movements has ranged up to about 20 trains daily during the past year. This district is equipped with automatic block signaling, and train movements are authorized by timetable and train orders, using telephone dispatching equipment.

Radio Type Antenna on the Tender and Induction Carrier Loop on the Locomotive

Except for the wayside station at Jesup, which will be discussed later, the equipment on these tests is of the carrier induction type which uses the previously existing wires on the pole line to "carry" the train communication energy which is at 170 kilocycles carrier frequency, using narrow band frequency modulation with unity deviation ratio. The gap between the line wires and the locomotive or caboose is bridged by induction.

Ordinarily the pole line is about 50 ft. from the track and where the ground is practically level the wires are at a level of 15 to 20 ft. above the rails. In hilly territory the wires may be up to 100 ft. or more from the track, and perhaps 50 ft. above or below the level of the tracks. The system is designed to operate satisfactorily with the wires up to 200 ft. from the track.

At each of the eight wayside offices the carrier induction telephone equipment is connected through condensers to the two No. 10 copper line wires used also for the telephone train dispatching circuit. Other wires on this crossarm include from four to six telephone and telegraph wires, most of which are No. 10 copper but in some instances are No. 8 BWG galvanized iron. The tests indicate that the presence of iron line wires on a pole line tends to reduce the range of the carrier induction communication. With no iron wires on the line, each additional No. 10 copper wire tends to increase the communication range. When both iron and copper wires are used, the iron wire tends to reduce the increased effectiveness that would otherwise be accomplished by the copper wire.

The carrier induction sets on the locomotive and caboose put out about 50 watts, and two-way telephone conversation is satisfactory between the head end and rear of the train, as well as between the locomotive or caboose and wayside offices up to 50 miles or more distant. For example, when the train was in the vicinity of Winthrop, the conductor talked with the operator at South Junction, about 60 miles away. According to tentative plans for an actual installation, offices about 20 to 30 miles apart would be equipped, and the conductor could communicate with the operator in the nearest office which is open at that time.

When transmitting from a mobile unit, as, for example, the locomotive of a train, 170-kilocycle energy is applied to the antenna to create a magnetic field which cuts or links with the line wires on the pole line, thereby inducing in the wayside wires the 170-kilocycle energy which is carried along the wires to be picked up by the antenna on the caboose. In this operation the gap between the wires of the pole line and the mobile units is bridged inductively in two instances, and these losses, together with the slight loss along the line wires, require up to 50 watts output for a range of up to 10 miles when transmitting from one train to another train, or from head to rear end of one train.

When transmitting from a wayside office to a locomotive or caboose, there is only one gap between the pole line wires and the antenna on the vehicles to be bridged inductively, and, therefore, considerably less power output is required at the wayside stations for communication with locomotives or cabooses on moving trains up to a maximum distance of 25 miles even under the most adverse weather conditions.

Conductor in Caboose Using Train Telephone to Talk to Engineman

The Aireon Car Coupled at the Rear of the Caboose

In this two-way telephone train communication system, the sets of electronic apparatus on the locomotives, cabooses and at wayside stations each include sending as well as receiving equipment designed to operate at 170 kilocycles. The receiver has a sensitivity of approximately 100 microvolts, and an audio output of 1 watt (6 watts in mobile equipment). All equipment is designed for frequency modulation with a deviation ratio of unity. The audio response is practically uniform from 200 to 3,000 cycles. The transmitter, also frequency modulated, is the oscillator-amplifier type. The sending and receiving sets for use on the locomotives and cabooses are similar to those used at wayside stations except for shock mounting and for the power output rating.

On the locomotives and cabooses, as well as at the wayside stations, the receiver apparatus is normally in operation and is connected to a loud-speaker, which, in effect, is used only as a calling device. A hand-set, combining transmitter and receiver, is normally hung on a hook-switch. If the conductor in the caboose, for example, hears a call for him coming in on the loud-speaker, he removes his hand-set from the hook-switch. This cuts out the loud-speaker and cuts in the receiver on the hand-set. When he is ready to talk, he operates a small push-button on the hand-set which cuts in the transmitter and cuts out the receiver. In order to minimize confusion, the volume controls on the loud-speakers in the cabooses and on the locomotives are adjusted to bring in calls only from the nearest wayside stations.

In addition to the carrier induction

train communication equipment, these tests also included straight space radio apparatus for sending and receiving on the locomotive, on the caboose and at the wayside office in Jesup, which is 16 miles east of Waterloo. The station at Jesup was chosen because it is on high ground, and as an additional aid, the antenna was placed on top of a 60-ft. pole which was set in place for use in these tests, being removed later. The sending and receiving sets are located in a case mounted near the top of this pole, so that the connecting wire to the antenna would be of minimum length.

This equipment operates at 156.525 megacycles, and various forms of antenna designed for this frequency were tested in service during these Illinois Central tests. For this frequency, a single antenna consists of a rod, 14 in. long, standing vertical, with four such rods extending horizontally in four directions from the base of the vertical rod. The vertical rod is one side of the output circuit, and the four horizontal rods are the other side. Another form of high-frequency antenna tried on this test consists of two metal disks, of unequal diameter, placed in a horizontal position and separated approximately 4 in. by a ring of plastic insulating material. This form of antenna is said to flatten the outgoing energy, and thus increase the range.

Regardless of the type of antenna, the tests indicated that the operations were approximately on a "line-of-sight" basis, this being demonstrated by the fact that trains within 15 to 20 miles of Jesup could maintain satisfactory telephone conversation with the station operator when the train was on high land, but communication was weaker or perhaps lost entirely when the train descended into a valley with hills intervening between the station and the train. Within the length of a train this straight radio equipment served satisfactorily to maintain telephone conversation between the head end and rear of the freight train. For this straight space radio, the output from the antenna is about 15 watts, which gives a range of 10 to 15 miles, depending on local conditions of elevations of the train.

Purposes of the Tests

The purposes for making these tests was to determine whether satisfactory two-way telephone conversation could be secured under local conditions on this engine district, and to assemble as much information as possible concerning the benefits of train communication in reducing train delays.

On freight trains which ranged up to 85 cars in length the telephone conversation between the engineman and conductor was satisfactory, using either the carrier induction system or the straight space radio. For communication between the locomotive or the caboose and the wayside stations up to 60 miles away the carrier induction system gave satisfactory service. The operating range of the space radio system between Jesup and a locomotive or caboose varied, depending on local conditions, from 5 to 15 miles. The carrier induction system provided the equivalent of an additional circuit for telephone conversations between the eight offices so equipped.

On October 12 the train communication equipment was in service at the eight wayside stations and on an eastbound freight train between Waterloo and Freeport. When departing from Waterloo, the use of the train telephone system saved time in checking the air and giving the engineman a high-ball to depart. During a stop not far from Dubuque the conductor noted that three springs were broken in one truck of the fourth car ahead of the caboose. By means of the communication system this information was given to the engineman and to the yardmaster at Dubuque. Thus arrangements were made ahead of time so that when the train arrived at Dubuque the switch engine was on hand to cut out the car promptly. Without this advance information the switch engine would have been in a remote part of the yard, thus requiring additional loss of time.

Both the carrier induction and the space radio operated satisfactorily while the locomotive or caboose was passing through the steel bridge over the Mississippi river. The carrier system operated to maintain contact with East Dubuque while the caboose was in the 850-ft. tunnel just east of the bridge.

At various locations when stopping for coal and water, or to enter and leave sidings, the train communication was used to tell the engineman the location of the rear end, or to give a high-ball, thus saving several minutes in each instance. When the train was in the vicinity of Apple River information was received from the wayside office that a following passenger train was running 15 minutes late. By means of the train communication the conductor carried on a telephone conversation with the engineman, and they agreed that their train could run on through to the yard at Freeport ahead of the passenger train. Without the train communication, the engineman might have decided to take siding at one of the intermediate stations, and if he did not do so the conductor might have "pulled the air" to force the engineman to stop and take siding. By agreeing to hold the main track and run through to the yard at Freeport the freight train saved considerable time, because, if this train had taken siding, it would have been required to stay there for the eastbound passenger train, as well as a westbound passenger train. As it was the freight train went into the yard well ahead of the eastbound passenger train, and the westbound passenger train lost no time because of this move.

At frequent intervals the conductor used the train to talk with the operators at the nearest stations. These operators were in touch with the dispatcher by telephone so that the dispatcher had close information on the exact location of and progress being made by the train.

On October 15 representatives of several newspapers were guests on a trip between Freeport and Dubuque. While en route two of the reporters used the telephones to dispatch their stories from the moving train to a wayside office from which telegraph was used to the newspaper offices, thus beating a deadline.

These train communication tests on the Illinois Central were made under the direction of J. M. Trissal, superintendent of communication and electrical engineer, and Paul B. Burley, electronics engineer, with the co-operation of W. E. Davis, division superintendent, and several men on his staff.

Engineman in Locomotive Cab Using Telephone to Talk to Conductor

A Long Diesel-Powered Freight Train Moving Westward in the Canyon of the Middle Fork of the Flathead River. New Embankment Toward the River Will Lighten a Long 6-Deg. 20-Min. Curve

Ironing Out a Crooked Mountain Line

Great Northern is completing sixth project in Spokane to Glacier Park territory to rid itself of sharp curvature with its attendant difficulties and hazards

OUT on the west end of its Kalispell division, between Spokane, Wash., and Red Eagle, Mont., a distance of about 300 miles, the Great Northern has a much improved main line today at a number of points as a result of a series of relatively short, yet effective, curve-reduction projects carried out during the last four years. These changes in alinement reducing 8-, 9- and 10-deg. curves to 5 deg. or less will improve train operation, minimize the hazards of derailments and materially reduce the cost of track maintenance in this territory. Incidentally, with the completion of this work, the road will have no 10-deg. curves on its main line east of the Cascade Range, except one, where the line develops down to the Columbia river east of Wenatchee, Wash.

In this line change work, which has been carried out as six different projects ranging from a few hundred feet to nearly seven miles in length, numerous curves up to 10 deg. have been eliminated, a considerable number of curves of 8 deg. or more have been reduced to 5 deg. or less, many curves from 5 to 8 deg. have been reduced to 2 deg. or less, and there has been a reduction of more than 1300 deg. of central angle. Reduction in mileage and in grades has not been a controlling factor in any of the projects, although all but one of them have shortened distance, and none of them has affected the relatively light grades in the territories involved.

Reduce Hazards

In this Great Northern work, the problem has been to reduce curvature in a rough mountainous territory, largely in canyons skirting winding mountain rivers or streams—not primarily to increase train speeds or to shorten train schedules, which are certain to be affected favorably as the program is extended in future years but rather to get away from the difficulties and hazards inherent in heavy curvature, including excessive train resistance; excessive wheel flange wear and broken flanges, resulting in a relatively high frequency of derailments; excessive crushing of the low rail, calling for frequent transposition and replacements; excessive destruction of the crossties due to derailments and to frequent regaging operations; and largely increased cost of track maintenance generally. Other factors of consequence in the work done were to move the line away from sliding mountain faces at several points, back from encroaching river courses at other points, and to minimize snow problems at still other points in territory subject to annual snowfalls up to 30 ft.

Following completion of the work at the various points, it proved a distinct aid in handling the heavy war-time traffic on the Great Northern, and will

continue to benefit operation in this territory for years to come. Significantly, this work, extremely heavy in some sections, has been carried out largely with power machines and tools, calling for a relatively small amount of manpower, even in the track-changing operations.

Two Projects Near Scotia, Wash.

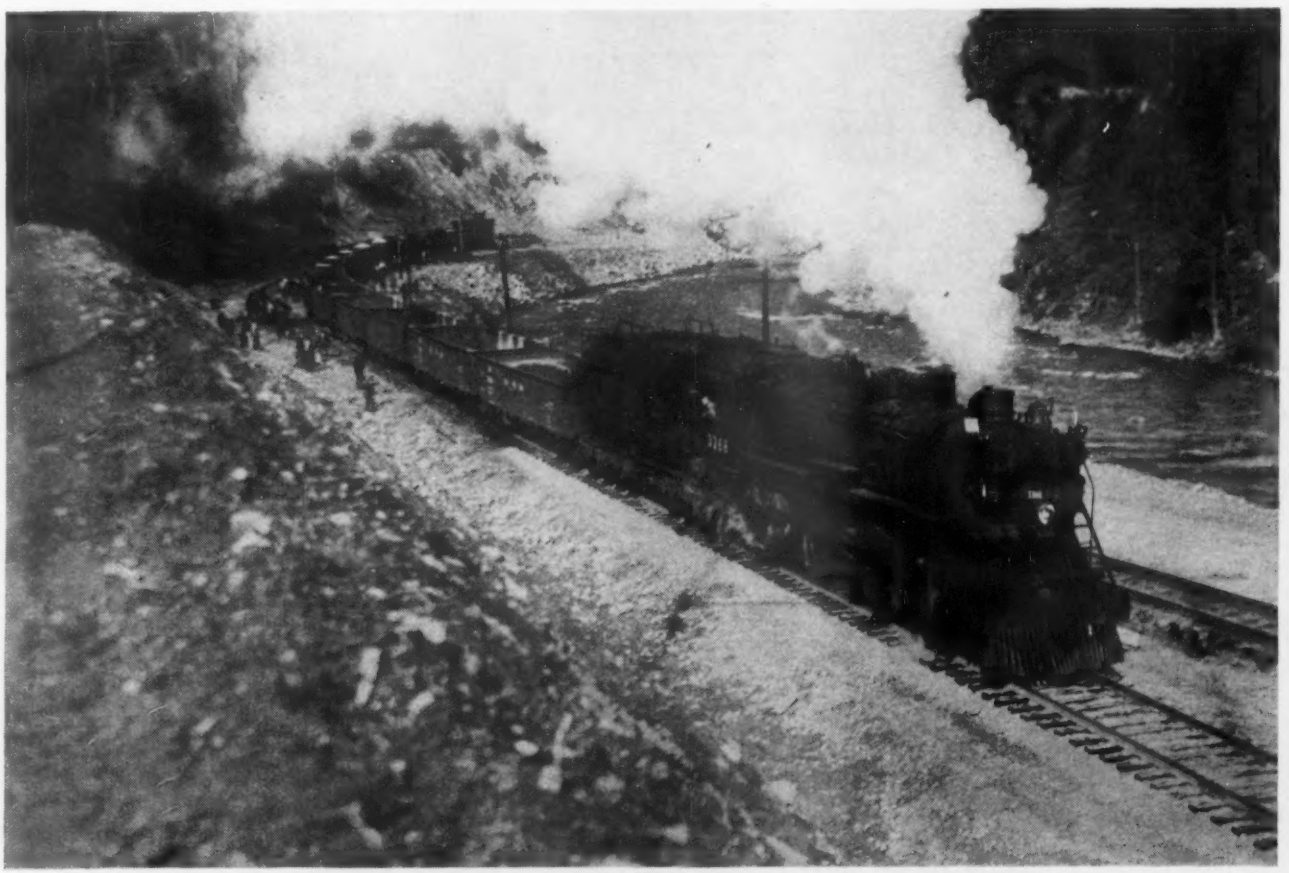
Of the six projects in this territory, two, completed in 1943, were known as the Belton to Citadel job and the Bad Rock Canyon job. The other four projects, all of which were started during the present year, and which have now been completed or are nearing completion, are located at points about 1 mile and 1½ miles west of Scotia, Wash., about 38 miles east of Spokane; from 1 to 3 miles east of Camden, Wash., a town about 32 miles east of Spokane; and between Belton, Mont., and Red Eagle, a distance of about 11 miles, on the road's west approach to the Glacier National Park area.

In the line change one mile west of Scotia, where the main line—single track—was crowded back against the mountainside by the Little Spokane river, only one curve was involved, but this was an 8-deg. curve, 995 ft. long, with 79 deg. 36 min. of central angle. Here, the line was thrown inward a maximum of 135 ft. on a new fill, to a curve of 5 deg., spiralled at both ends, as are all of the new curves in these projects, with a total length of 1,892 ft., and a total central angle of 79 deg. 36 min., the same as the old curve.

This work, which required a channel change in the Little Spokane river approximately 550 ft. long, a considerable change in a public road, and two multiple culvert-type waterway openings through the new fill, called for approximately 12,400 cu. yd. of excavation and borrow, of which about 2,000 cu. yd. was solid rock.

A Heavy Cut to Lighten Curvature on the Belton-Citadel Project in Montana

In the project 1½ miles west of Scotia, where the line continues to be flanked on the south side by the Little Spokane river, the problem was to get rid of 555 ft. of 9-deg. curve, followed immediately to the west by a long 5-deg. 30-min. reverse curve and a 6-deg. 30-min. curve, again reversed. Here, the objectionable combination of curves was overcome by a 1,000-ft. channel change in the river, and by swinging the line to the south of the old location a maximum of 170 ft. on a new fill, employing 603 ft. of 5-deg. curve, with long spirals,



Ballasting a New Section of Main Line Along the Middle Fork of the Flathead River, Between Tunnels 3.7 and 3.8 on the Belton-Red Eagle Project

followed to the west by 837 ft. of tangent and a short, spiralled 1-deg. curve—the entire change extending over a total distance of approximately 2,300 ft.

This work, which eliminated 49 deg. of the central angle, required a total of 69,000 cu. yd. of excavation and filling, including 3,000 cu. yd. of solid rock—the one long fill alone requiring approximately 64,000 cu. yd. of material, secured largely from borrow.

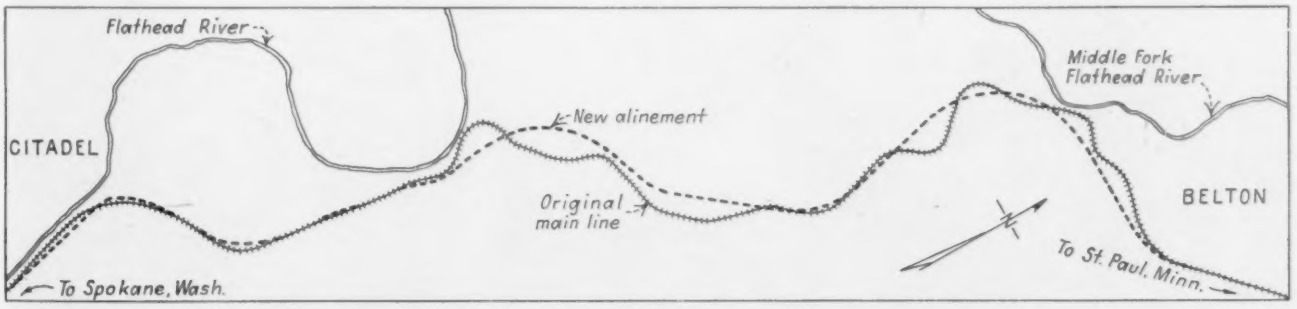
Iron Out Many Curves

The Bad Rock Canyon curve-reduction project, located just east of Columbia Falls, Mont., in single-track, heavy-curve territory, presented the problem of 9 reversing curves, from 2 to 8 deg., within a distance of 6,425 ft. Here, an 8-deg. curve, a 6-deg. curve, a 3-deg. 30-min. curve, and a 2-deg. 50-min curve were eliminated; another 8-deg. curve was reduced to 3 deg.; a 5-deg. 30-min. curve was reduced to 5 deg. 15 min.; a 5-deg. curve was cut to 2 deg.; a 4-deg. curve was reduced to 2 deg. 30 min.; and a curve of 2 deg. 6 min. was changed to 1 deg. In this work, where the maximum line throw was approximately 130 ft., 118 deg. of central angle were eliminated. Grading included approximately 5,180 cu. yd. of solid rock excavation and approximately 284,500 cu. yd. of common borrow for embankment construction. Two of the largest fills involved 87,000 and 107,500 cu. yd. of material, respectively.

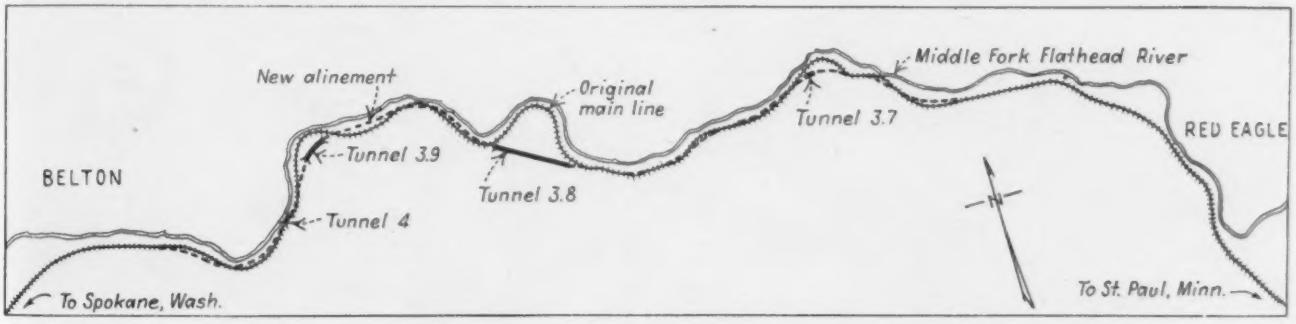
In the Camden job, three 10-deg. curves and individual curves of 8 deg., 6 deg., 5 deg. 45 min., and 5 deg., four to the left, westward, and three to the right, and all within a distance of 2.15 miles, gave way to six 5-deg. curves, three to the left and three to the right, with a reduction of 68 deg. 53 min. in central angle. Line throws here were held to a maximum of approximately 150 ft., but grading was relatively heavy and difficult, including 50,500 cu. yd. of rock excavation, all but 7,000 cu. yd. of which was in solid rock; embankment yardages up to 112,300 cu. yd., and individual embankments containing as much as 53,000 cu. yd. In addition, this project required the drilling of a single-track tunnel 620 ft. long and the construction of a 294-ft. multiple-span, deck-girder bridge, on concrete piers and abutments, over the Little Spokane river, replacing a somewhat similar and lighter structure, 254 ft. long, resting on creosoted pile piers and abutments.

Between Belton and Citadel, a distance of approximately eight miles in a heavy rolling mountainous territory, the actual curve reduction work was spread over practically the entire distance and included a total of 24 curves, with as many as eight ranging from 8 to 10 deg. Of these curves, 17 were eliminated, while all others above 3 deg. were brought down to that figure or below—with a total reduction in central angle

This Section of New Light Curvature on the Belton-Citadel Project in Montana Eliminated a Heavy Swing Back into the Canyon Shown at the Left



Between Citadel, Mont., and Belton, a Distance of Approximately Eight Miles, 17 Curves Were Eliminated and All Others Were Reduced to 3 Deg. or Less



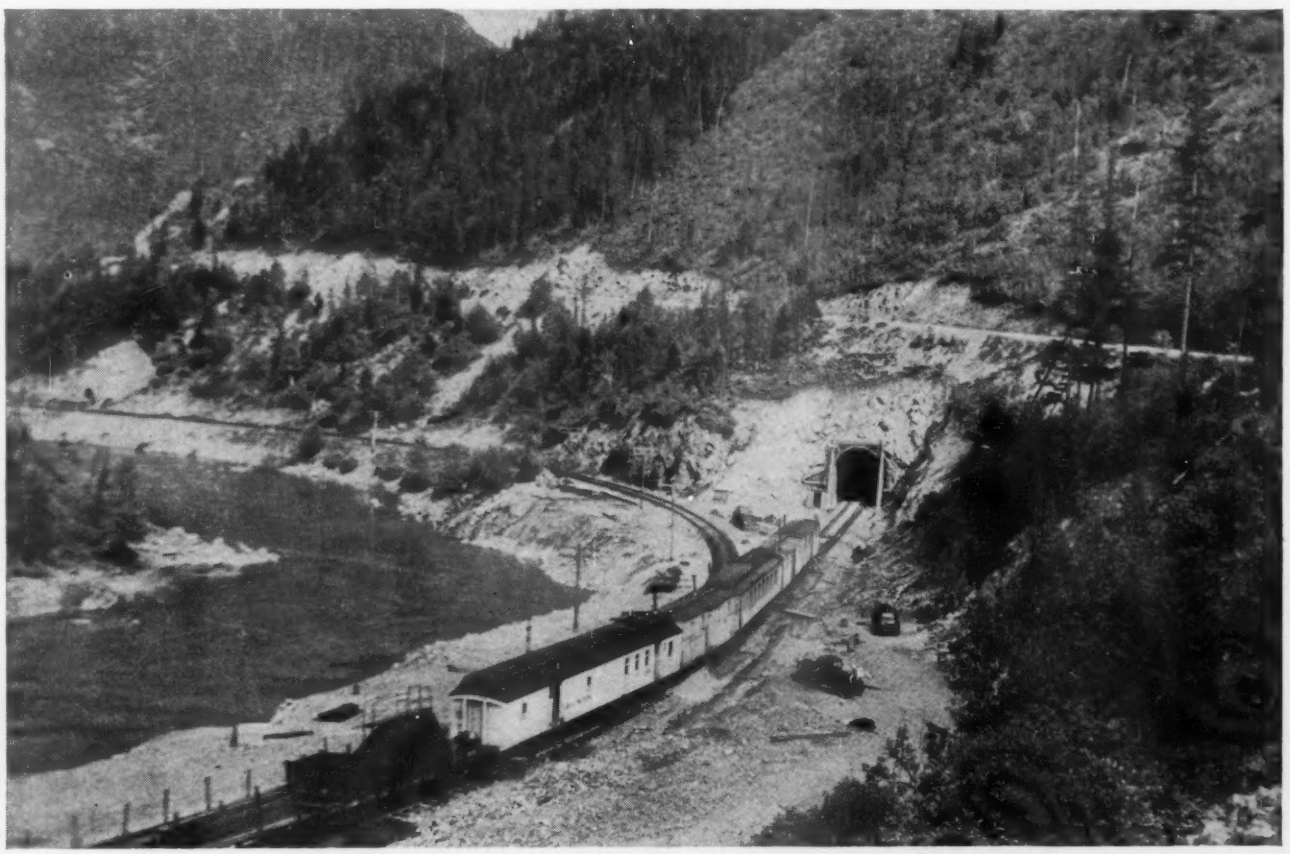
New Tunnels Helped Eliminate Heavy Swings in This Section of Line Between Belton, Mont., and Red Eagle, a Distance of Less Than 11 Miles, Where Curves Were Reduced to a Maximum of 5 Deg., with a Total Saving of 471 Deg. of Central Angle

of 630 deg. and a total reduction in length of line of 0.4 mile. This work, in part along the canyon of the Flathead river, involved a total of 842,000 cu. yd. of grading in excavation, embankments and drainage ditches, including the excavation of approximately 21,400 cu. yd. of solid rock. At least two cuts exceeded 190,000 cu. yd. in size, one amounting to 220,000 cu. yd., while the largest fill contains 244,000 cu. yd. of material.

While all of the various curve-reduction projects have been of considerable magnitude and have had features of special interest, one of the largest, and with the most diverse range of construction problems, was that completed early in September of the present year, between Belton and a point about two miles east of Red Eagle, Mont., connecting up to the west with the Belton-Citadel project already described, and completed in 1943. Between Belton and Red Eagle, where the single-track main line winds eastward up the deep canyon of the Middle fork of the Flathead river, only about 35 miles west of the summit of the line over the Continental Divide, there were a total of 21 curves involved in the line changes, 5 of which, simple or compound, included curvature up to 10 deg. 30 min., with another 8, with curvature between 6 and 10 deg. In the changes made, all curves above 5 deg., except one (5 deg. 40 min.) were reduced to 5 deg. or lower, three curves were eliminated, and several others were reduced appreciably, with a total reduction in central angle of 471 deg. and a saving in distance of 0.4 mile. Adding to this, in a section of double track about two miles east of Red Eagle, 1.29 miles of double track was affected in a line change which reduced a 10-deg. curve to 5 deg. and eliminated an 8-deg. 10-min. curve, reducing total central angle from 121 deg. to 58 deg.

This New Tunnel, 314 Ft. Long, on the Belton-Red Eagle Line Change, When Completed, Cut Off 1,060 Ft. of 10-Deg. Curve Around a Steep Bluff

Special features of the work between Belton and Red Eagle include the cutting off of several heavy swings in the old line, one including 1,480 ft. of 10-deg. curve; the construction of three tunnels, one 2,280 ft. long, and the enlarging of a fourth existing tunnel on one side to fit a new alinement; and generally heavy cuts and fills, involving 213,000 cu. yd. of solid rock excavation, 35,000 cu. yd. of loose rock excavation,



The West Portal of the New 2,280-Ft. Tunnel 3.8 on the Belton-Red Eagle Project, Which Eliminated 4,563 Ft. of Compound Curvature Around the Bluff to the Left, Including Long Sections of 10-Deg. and 10-Deg. 30-Min. Curves

and 110,000 cu. yd. of common excavation—exclusive of the heavy rock removal in tunnels.

Traversing this project from Red Eagle westward, in the direction of mileage, tunnel and curve numbering, the first line change involved an 1,815-ft. righthand compound curve, including curvature of 5 deg., which was reduced to 3 deg. 30 min., followed by 400 ft. of 8-deg. curvature to the left, which was reduced to 5 deg. Immediately beyond this, another 631 ft. of 8 deg. curve to the right was reduced to 5 deg. by a relatively small line throw toward the river on a widened embankment involving the placing of 17,000 cu. yd. of filling material.

Continuing west from this point, the old line swung sharply to the left in more than 1,060 ft. of 10-deg. curve around a steep bluff, which was completely cut off by approximately 1,460 ft. of 5-deg. curve, in part cut back into the mountain slope, and for 314 ft., directly through the bluff, in a new tunnel, No. 3.7. Emerging from the new tunnel, the new line sweeps broadly to the right, closely following the canyon slope and the south bank of the river, with only minimum deviation from the old alinement, for a distance of approximately 2,500 ft., where it again swung to the left in 781 ft. of compound curvature up to 6 deg., which was reduced to 5 deg.

Eliminate Heavy Bulges

Still following the south side of the river gorge, the new alinement, with maximum curvature of 5 deg., eliminates 446 ft. of 8-deg. curvature and 387 ft. of 9-deg. curvature, both to the right, and then, by means of a new section of track 3,570 ft. long, all tangent except for 434 ft. of 1-deg. curvature, and incorporating a new tunnel 2,280 ft. long (No. 3.8), eliminates another long sweep around a projecting bluff, involving 4,563 ft. of compound curvature, to the right and left, including long sections of 10-deg. and 10-deg. 30-min. curves. This one change, in itself, including 846 ft. of new 5-deg. curvature at the west end of the tunnel, eliminated 303 deg. of central angle and shortened distance by approximately 3,520 ft.

Immediately west of this important line change, the new line, swinging to the left, and still hemmed in between the canyon slope and the river, cuts off bulges in the old line to the left and right, reducing 8-deg. curvature to 5 deg., and then, approximately 5,000 ft. from the west portal of tunnel No. 3.8, enters another new tunnel, No. 3.9, 621 ft. long, on a 5-deg. curve, to cut off another heavy swing in the old line, involving approximately 93 deg. of central angle of 10-deg. curvature.

In the next six curves to the west, in order, and extending to the west limits of the project, an 8-deg. curve was reduced to 5 deg., a 4-deg. 30-min. curve to 3 deg., a 6-deg. 20-min. curve to 5 deg. 40 min., and two curves of 4 deg. and 2 deg., respectively, to a single curve of 2 deg. 36 min. Here, another 29 deg. of central angle were overcome, and while the work involved several large rock cuts and two fills of 29,000 cu. yd. or more, the most difficult work was the widening of a 230-ft. existing tunnel, No. 4, from nothing at its west end to a maximum of 20 ft. at its east end, to accommodate the new alinement.

As already pointed out, the entire Benton-Red Eagle project, exclusive of the tunnel work, involved 213,000 cu. yd. of solid rock excavation, 35,000 cu. yd. of loose rock excavation, and 110,000 cu. yd. of common excavation. Five fills ranged in size from 17,000 cu. yd. to 41,000 cu. yd., and six cuts, largely in solid rock, required from 20,000 to 68,000 cu. yd. of excavation each.

Equipment and Standards

As on all the line changes carried out in this general territory since 1942, the grading on the Belton-Red Eagle project was done entirely with modern excavating and hauling equipment, the equipment on the job, including that employed in the tunnel work, consisting of the following: two 1½-yd. Diesel-powered shovels, one ¾-yd. electric shovel, one 1¼-yd. narrow-gage power shovel, one 1-yd. power shovel, 4 D-8 tractor dozers, 2 D-4 tractor dozers, 2 D-8 tractors equipped with 14-yd. caterpillar wagons, six 8-yd. Euclid trucks, four 5-yd. wheeled trucks, two 2½-ton wheeled trucks, 4 pick-up trucks, four 250-cu. ft. air compressors, four 500-cu. ft. air compressors, 6 electric generator sets, a tunnel jumbo, 10 jack hammers and 11 Denver drills.

Heavy drilling and shooting characterized practically all excavation in the open, and careful compaction and sloping characterized all fill construction. Cuts were made to a minimum width of 36 ft., with side slopes of ¼ to 1, and fills were constructed with a minimum crown width of 24 ft., and with side slopes of 1½ to 1.

All new trackage in the line-change work was laid to the latest standards for main-line track in this territory, including new 112-lb. rail; 7-in. by 9-in. by 8-ft. 6-in. crossties, treated with a creosote-petroleum mixture; 8½-in. by 12-in. double-shoulder tie plates; four-hole, head-contact joint bars; 20 anti-creepers to the panel, located on both sides of five adjacent ties in the quarter; and a full section of washed and crushed gravel ballast, of 1-in. maximum size, and with a minimum of 12 in. under the ties.

On all of the line changes involving relocations from the old alinement of more than 35 ft., entirely new track was constructed, cutting it into the old alinement at each end between trains on a carefully prearranged schedule. In this work all materials were trucked out on the new grade and laid, employing power equipment, including a rail-laying crane, wherever practicable.

For changes in alinement of less than 35 ft., the existing track was generally pulled over onto the new grade by means of crawler-type tractors equipped with cables and hooks, to be ballasted in its new location and finally lined with bars. However, the extent to which it was possible to follow this practice depended upon the character of the intervening ground and the time available between trains to complete the work, some situations developing where it was more practicable to build new track than to line over the existing track a distance of as little as 30 ft.

Tunnel Work

In the tunnel construction, which aggregated 3,215 ft. of new bore in tunnels No. 3.7, 3.8 and 3.9, and the widening of Tunnel 4 throughout its full length of 230 ft., practically all of the work was in fairly sound rock, which required timbering, but which permitted full-face excavation and removal of the timber prior to the pouring of a concrete lining. The single exception in this regard was for approximately 150 ft. near the east portal of Tunnel 3.7, where, encountering heavy rock, it was necessary to proceed first with wall-plate drifts, and then a top drift, before benching out below the wall-plate level.

In all of the tunnels, excavation was done from a two-level jumbo mounted on a truck, which could be moved back from the face to permit shooting operations. All excavation within the tunnels was handled with the ¾-yd. electric shovel, loading into trucks for removal.

All tunnels were timbered with 12-in. by 12-in. wall posts, and a 5-segment arch also employing 12-in. by 12-in. timbers, the spacing of the posts and arch rings depending upon ground conditions. Clearance standards within Tunnel 3.8, which is on tangent throughout, called for a width of 16 ft. between side faces of the lining, and a height 22 ft. from top of rail to the crown of the arch. In Tunnels 3.7 and 3.9, however, both of which are on 5-deg. curves, the overhead clearance is 22 ft. above the top of low rail, but side clearances are increased to 9 ft. each side of the center line to allow for the mid-ordinate, overhang and tilt of a car 85 ft. long, 14 ft. high, and 60 ft. center to center of trucks.

All concrete lining work, except directly at the portals, was done employing collapsible, movable forms, batch mixers and Rex concrete placing machines. At the portals, the concrete was deposited by gravity into fixed forms.

All of the line-change work described was planned and carried out under the direction of C. M. Nye, chief engineer of the Great Northern, at St. Paul, and H. J. Seyton, assistant chief engineer, at Seattle, who were represented on all of the projects by E. W. Sherman, resident engineer. All of the work was done under contract by A. Guthrie & Co., Inc., St. Paul, Minn., the contract work including the track laying and surfacing, except on the Belton-Red Eagle project, where the track work was done by company forces. However, all track work in each case was under the direct supervision of the track department of the railroad, reporting to L. J. Gilmore, general roadmaster.

Canada's Experience with Agreed Charges

An important volume of traffic is now being moved under contract rates which offer incentives to shippers to use railroads regularly, and not as a mere "stand-by" facility

By G. LLOYD WILSON

Professor of Transportation & Public Utilities, University of Pennsylvania

AGREED charges may be described as contract rates, whereby the railway on the one hand is guaranteed the whole for a specified part of the shipper's traffic, and on the other hand the shipper is guaranteed a rate usually somewhat lower than the normal railway rate for a stated or unlimited period of time. Thus the interest of the shipper and the carrier or carriers in the agreed charge contract is mutual.

Agreed charge arrangements in Canada were authorized by the Transport Act, 1938.[1] Part V of this Act provides that any carrier subject either to the Railway Act or to the Transport Act—including railway, express, water or air—may make charges for the transportation of all or any part of the goods of any shipper, as may be agreed upon by the shipper and carrier. So far the rail carriers generally have participated in agreed charges, except a few made jointly with an express company.

Agreed charges thus determined must be approved by the Board of Transport Commissioners for Canada as a condition precedent to their adoption and use. The Board is directed by the Act not to approve any agreed charge arrangement if, in its judgment, the object sought by the agreed charge proposal can be achieved adequately by other more conventional methods of rate-making—due regard being had of all the circumstances surrounding the case. The Board is prohibited from approving an agreed charge arrangement when the service covered by it is to or from or between competitive points served by two or more railways unless the competing carriers join in the arrangement.[2]

How the Rates Are Instituted

The Act requires that an original and duplicate of the proposed agreed charge arrangement be filed with the Board of Transport Commissioners within seven days after the date of its negotiation. Notice of application to the Board for approval must be published by the applicant railway in the "Canada Gazette"—the official register publication of the Dominion—at least thirty days before the hearing of the application. The Board may direct that other notice be published in addition to the notice published in the "Canada Gazette."

Applications for the approval of agreed rate arrangements under the Canadian Transport Act are governed by regulations prescribed by the Board of Transport Commissioners for Canada.[3] These regulations prescribed that the agreement must be submitted to the Board in triplicate in uniform size—8 by 11 inches—and either printed or mimeographed. The applications are required to be submitted for approval in the form prescribed, to the Secretary of the Board of Transport Commissioners at Ottawa within seven days from the date of the making of the agreement. The applications for approval must have attached copies of the proposed agreement and must be supported by the following data:

1. A statement of the reasons why the objects to be secured by the agreement cannot be achieved by the publication of special or competitive tariffs conforming to the provisions of the Railway Act or the Transport Act;

2. A statement in detail of the relevant data of the factors upon which the agreement was based;

3. A statement in general terms concerning the degree to which the carriers' net revenue may be affected by the transportation of the goods under the proposed agreed rate;

4. A copy of the notice published by the applicant carrier in the "Canada Gazette" that it has applied to the Board of Transport Commissioners for the approval of an agreed charge arrangement between it and the named shipper in connection with the described traffic at a specified basis of rates; and,

5. A certification that copies of the application have been filed as required by the Board's regulations with a list of chambers of commerce, boards of trade, and other companies or organizations known to be in the same line of business and in the same territory in which the proposed agreed rates are to be operative.

The form of application for approval is prescribed by the Board, as is the form prescribed for notice in "Canada Gazette." A list of organizations required generally to receive notices of agreed charge proposals is prescribed by the Board. This list including the boards of trade of the principal cities of Canada, the chief trade associations, the Lake Freight Association, when the agreed rate applications affect the interests of competitive water lines are affected, and such other companies as are known to be engaged in the same trade as or located in the same territories in which the agreed rate arrangements are to be operative.

Bases of Agreed Charges

Agreed charge arrangements, as has been stated, may be established to apply to all or any agreed part of a shipper's traffic, subject to certain statutory limitations. The charge may be expressed in a rate in cents per 100 pounds or other unit the Board of Transport Commissioners may approve. The arrangements may not name a charge based upon a carload rate for one car which exceeds the carload rate for a greater number of cars.[4] The agreements are not permitted in connection with the transportation of freight in bulk by water. Freight or goods in bulk is interpreted to mean generally goods which are not enclosed in any type of container, including: grain and grain products, ores and minerals, ore concentrates, sand, stone, gravel, coal coke, liquids, pulpwood, wastepaper, pig iron, and iron and steel scrap.[5] They may not have the effect of affecting the special freight rates required to be made by the carriers by the Maritime Freight Rates Act, 1927, or under the Crow's Nest Pass Rate Agreement.[6] These are statutory rates in connection with which the Canadian government subsidizes the railways in the amount of the difference between the standard and the subnormal or statutory rates.

Agreed charge arrangements may be established either for a fixed period of time or without definite time limits, in the discretion of the Board of Transport Commissioners. The effective date of the arrangement may also be approved or fixed by the Board, but this date may not be earlier than the date of the filing of the application for the approval of the arrangement.[7]

Rights of Parties

After applications for approval of an agreed charge have been filed with the Board, notice of objection in the form

[1] Transport Act, July 1, 1938, 2 George VI, Chapter 53.
[2] Transport Act, 1938, Part V, Section 35 (1).
[3] Board of Transport Commissioners for Canada, General Order No. 581, January 21, 1939, File 40994, as amended by General Order No. 599, December 20, 1940.
[4] Transport Act, 1938, Part V, Section 35 (3).
[5] Ibid., Part V, Section 38, and Section 2 (e).
[6] Ibid., Part V, Section 37.
[7] Ibid., Part V, Section 37, (4); and Section 37, (7).

prescribed by the Board may be filed by: (1) any shipper who considers that his business will be discriminated against unjustly if the agreed charge is made by the carrier and approved by the Board; (2) any shipper who considers that his business has been discriminated against unjustly as a result of the making of an agreed charge by virtue of a previous approval by the Board; (3) any representative bodies of shippers, such as chambers of commerce, boards of trade, trade associations, or other similar organizations; and, (4) any carrier, that is, any carrier subject to the Transportation Act of the Railway Act.[8] A standard form of notice of objection is prescribed by the Board. After formal objection has been filed, the objectors are entitled to be heard in opposition to the applications in hearings before the Board of Transport Commissioners.

At the same time he files objection to an existing or to a proposed agreed charge, a shipper may apply to the Board to fix an agreed charge for the transportation of his traffic, if certain conditions are met. It is required that: (1) the goods are of the same or similar kinds of goods; (2) the circumstances of transportation are substantially similar; and (3) the transportation is by the same carrier, as in the case of the goods covered by the agreed charge to which objection is made. If the Board is satisfied that the shipper's business has or will be discriminated against unjustly, it may fix an agreed charge to be made by the railway for the transportation of the objecting shipper's traffic. The Board may determine the conditions to be affixed to any agreed charge arrangement directed to be made under these circumstances.[9]

Applications for the withdrawal of agreed charge arrangements previously approved and in effect may be made—(after the expiration of a year after approval)—by an objecting shipper, a representative body of shippers, or by a carrier, under conditions similar to the grounds for objection to a proposed agreed charge. The Board, in its discretion, may: (1) withdraw its approval; (2) refuse to do so; or (3) continue the arrangements subject to modifications it considers proper and which the carriers and shippers parties to the agreement are willing to accept.

If the Board has fixed an agreed charge for a shipper who has objected to an existing or proposed agreed charge applicable to the traffic of another shipper, the objecting shipper may not make an application for approval of an agreed charge relating to the same or similar goods covered by the agreed charge fixed by the Board.[10]

Complaints to Transport Head

Complaints may be made by representative bodies of carriers subject to the jurisdiction of the Board—rail, water or air—to the Minister of Transport that agreed charges established by railways place these forms of transportation at an undue or unfair disadvantage. If the Minister considers that these complaints are made by organizations which are properly representative of those engaged in the same kinds of transportation and that the national interests require that the complaints be investigated, they are entertained by the Minister of Transport and referred to the Board of Transport Commissioners for investigation. The Board thereupon is required to hold hearings upon the complaints. If it finds that the effect of the agreed charge arrangements of which complaint has been made is undesirable from the national viewpoint upon the form of transportation represented by the complainants, the Board may by order cancel or amend the arrangement, in the exercise of its discretionary powers.[11]

If the Board cancels or varies an agreed charge upon complaints of this sort, or withdraws its approval of an existing agreed charge, any agreed charge in favor of a shipper complaining of the agreed charge shall become inoperative, or be continued in effect subject to the corresponding modifications prescribed by the Board.[12]

Publication

After agreed charge arrangements have been negotiated and approved, they are published in the form of tariffs and filed with the Board in the same manner as rates made upon other bases. The agreed charges like other rates are subject to the publishing requirements of the Canadian Railway Act.[13] Typical publication of agreed charges are those covering the rate of $3.90 per ton of 2000 pounds on salt in bulk from Sandwich, Ont., to the plant of the Canadian Industries, Ltd., at Shawinigan Falls, Que., subject to the minimum weight capacity of the car, except when cars are loaded to full visible capacity and will not contain this minimum when actual weight apply but not less than 80,000 lb.[14]; and publishing on petroleum products in bulk on a distance block scale of rates from numerous points of origin and destination in Ontario.[15] The publications are issued for the railways, parties to the arrangements, by the chairman of the Canadian Freight Association.[16] They are arranged in tariff form and contain an identification of the parties to the agreement a description of the traffic, the states or places from and to which the arrangement is applicable, the agreed charge, routing, and the conditions attaching to the agreed charge.

The Transport Act, 1938, directs that the Board of Transport Commissioners in acting upon an agreed rate arrangement—whether on application, complaint or request for withdrawal—shall consider all matters which to it appear to be relevant. It particularly is charged with the responsibility of considering the effects agreed charges have had, or may have, or are likely to have, upon the net revenue of the carrier, and the business of any shipper. The shippers' interest to be considered include that of those making objections to agreed charges or requesting their withdrawal, as well as that of those who seek the approval of approved charge arrangements.[17]

Table I—Agreed Charges in Canada

A. C. No.	Traffic	Traffic Originating in Province of
9	Butter	Alberta
13	Butter	Alberta
22	Butter	Alberta
17	Coal	Saskatchewan
18	Eggs	Manitoba
15	Lumber	Western Canada (30 shippers)
23	Naptha	Ontario and Quebec
11	Petroleum Products	Ontario
14	Petroleum Products	Quebec (including Ottawa, Ont.)
24	Petroleum Products	Quebec
30	Petroleum Products	Alberta
25	Salt	Ontario
12	Surgical Supplies, etc.	Quebec
7	Surgical Supplies	Ontario
8	Surgical Supplies	Ontario and Quebec
10	Soap	Quebec
19	Surgical Supplies	Ontario
27	General Merchandise	Saskatchewan

Applications

A list of the applications for agreed charge arrangements in Canada which have been approved by the Board of Transport Commissioners for Canada is given in the accompanying table. An examination of these applications shows some interesting characteristics of the agreements:

1. The majority of the arrangements have been made to meet highway competition. Several were established to meet steamship competition, and one to meet both steamship and motor competition. The arrangement is primarily designed to enable railways to transport goods upon substantially the same conditions as motor carriers, particularly contract carriers.

2. The earlier agreements in 1939 and 1940 were made, usually, with termination dates, and were usually renewed on or before the expiry dates, but those negotiated since that time have been established usually without expiry dates.

3. The arrangements are concerned chiefly with a limited number of commodities including: toilet and sanitary preparations, petroleum products, dairy products, lumber and forest products, salt, coal and products, and solvents. This list of commodities is varied and indicates the range of carload and less-than-carload traffic in connection with which agreed rates may be used.

4. Agreements are found in various parts of Canada except the Maritime Provinces, but most of the agreements are used in connection with traffic in

[8] Transportation Act, 1938, Part V, Section 35, (5); and Section 2, (d).
[9] Ibid., Part V, Section 35, (6) and (8).
[10] Transport Act, 1938, Part V, Section 35, (9).
[11] Ibid., Part V, Section 36, (1).
[12] Ibid., Part V, Section 36, (2), and Section 35, (11).
[13] Railway Act, Section 331; and Transport Act, 1938, Part V, Section 35, (10).
[14] Canadian Freight Association, C. T. C. (A. C.) No. 25, effective December 1, 1941.
[15] Ibid., C. T. C. (A. C.) No. 11, Effective September 1, 1940, and Supplements 1, 2 and 3.
[16] Agent W. M. Matthews, Montreal.
[17] Transport Act, 1938, Part V, Section 35, (13).

Ontario, Quebec or the prairie Provinces.

5. In every case excepting one, the two chief railways of Canada are parties to the agreements.

6. In several agreements, railroads of the United States which operate in part of Canada are participating carriers.

7. The agreements once entered into appear to be satisfactory to shippers and carriers, judged by the small number of cancellations and terminations.

8. Both carload and l.c.l. commodities are included in agreed rate agreements.

9. In some cases the establishment of agreed charges upon carload traffic was conditioned upon the shippers giving to the carriers a large percentage of their l.c.l. traffic at the carriers' normal or standard rates.

10. The applications indicate a strong tendency toward the establishment of similar arrangements upon the similar traffic of competitive manufacturers or distributors either from the same or different points of origin following the establishment of an agreed charge arrangement for one shipper. This is illustrated in the arrangements made for petroleum refiners, toilet preparation distributors, dairy products distributors, and lumber producers and distributors.

Renewal of Agreements

Virtually all applications for the renewal or extension of agreed charges arrangements approved for a fixed period of time, usually for a year, have been approved without a fixed termination date.[18] The approved agreements usually contain a provision that the arrangements shall continue in effect until terminated by either party—railways or shippers—by three months' notice in writing, effective at the end of one year from the date of approval or at any time thereafter. One application has been renewed several times with a fixed expiry date.[19] If all renewals and extensions are included, the number of applications approved is 31. Omitting these actions, the total number of applications approved is 22.

In cases where no objections to the applications were filed, the Board issued no reports but only orders approving them.

Some Are Turned Down

Two applications were refused in the original form, but revisions were made and the revised applications were granted by consolidation with other applications. In a number of other cases, applications were approved on the same basis and in the same agreements made with other shippers.

In 1942, two applications for agreed charge arrangements were declined by the Board of Transport Commissioners for Canada. One of these applications was made July 2, 1940, by the Canadian National and the Canadian Pacific with Johnson & Johnson, Ltd., Chicopee Manufacturing Corporation, and Personal Products, Ltd., to apply in connection with carload shipments of toilet preparations, paper articles, sanitary supplies, cheese cloth, and advertising matter from Montreal to points in Western Canada. The other application was made by the Canadian National; Canadian Pacific; New York Central; Toronto, Hamilton & Buffalo; and the Wabash with the Canadian Cellucotton Products Co., Ltd., to apply on carload shipments of disinfectants, paper articles, sanitary supplies, medicinal tablets, and advertising matter from Niagara Falls, Ontario, to points in Western Canada.

Objections were filed by steamship carriers, subject to jurisdiction of the Board. The applications were heard together and dismissed by the Board. The basis for the judgment of the Board was that the objecting steamship carriers had heretofore participated in the traffic and that it was inequitable, therefore, for them to be deprived of the opportunity of doing so under the provisions of the Transport Act.[20] The Board found in its study of the revenues and tonnage of the railways under the existing rates and under the proposed agreed charges that the net result of the arrangement would be that the railways would transport substantially more traffic for slightly less revenue. Accordingly the proposed agreement was disapproved.

Application was made to the Board for a review and rehearing, whereupon the Board stated a case for an opinion of the Supreme Court of Canada on the question of law: whether or not the Board is precluded in considering an application for an agreed charge between a shipper and a rail carrier from regarding as relevant considerations the effect which the making of the agreed charge is likely to have on the business and revenues of other carriers. This question involved the interpretation of the duty of the Board and the limits of its discretion under the Transport Act, 1938.[21]

The Supreme Court by majority opinion, with two Justices dissenting, answered the question in the negative.[22] Subsequently, leave was granted to the railway companies to appeal to the Judicial Committee of the Privy Council of Great Britain, the final legal authority of the British Commonwealth. This body considered the question and advised His Majesty, the King, that the appeal be dismissed and that the judgment of the Supreme Court of Canada be affirmed.

The effect of this judgment is to affirm the power and the duty of the Board of Transport Commissioners for Canada to regard all considerations which appear to it to be relevant, including the effect that the proposed agreed charge arrangements have or are likely to have upon the traffic and revenues not only of the carriers parties to the agreements but of competing carriers, if deemed by the Board to be relevant.

Commissioners Upheld

Lord McMillan of the Judicial Committee of the Privy Council stated in part: "If the objecting carrier in resisting the approval of a charge agreed between a rival carrier and a shipper were to be precluded from referring to its probable effect upon his own business it is not easy to see on what grounds of objection he could rely. . . .

"It would be strange if in attempting to coordinate and harmonize the operations of all carriers by rail, water and air, the Board were to be precluded, when performing their new and important duty of scrutinising agreed charges, from considering their effect on the businesses of all carriers concerned in the traffic affected." [23]

From this decision it appears that unless the Transport Act is amended by the Canadian Parliament, the Canadian railways are restricted in the making of agreed charges to the field of meeting unregulated competition, or to circumstances where the interest of a regulated water carrier is not present or adversely affected. It should be noted in this connection that the Canadian Transport Act does not regulate the carriage by water of certain bulk commodities. The Canadian railways are therefore free to make agreed charges on such commodities.[24]

Negotiation

The official procedure followed in making, approving and publishing agreed rates has been discussed above. There remains to be made, however, some observations with respect to the negotiations in the pre-arrangement stage. The initiative in commencing negotiations may originate by a suggestion by a shipper that an agreed charge of a specific amount would assure the railways of the traffic to be included in the agreement, or with a request of a railway officer for the shipper to consider whether or not an agreed charge would suit his requirements and assure the railways of all or certain parts of the shipper's traffic, including, in some cases, traffic presently moving in the shipper's own vehicles.

The shipper, if interested, compares his costs of transportation via other means of transportation including any differences in loading, unloading or handling the traffic by railroad in comparison with costs via other means of transportation. Costs are studied in detail and the shippers' estimates of costs are analyzed by the carriers traffic and research departments. The degree of care used in cost and service comparisons may be illustrated in the negotiations

[18] See Applications Nos. 2, 3, 4, 5, 6 and 16, in the accompanying table.

[19] See Application No. 18 in accompanying table.

[20] Judgment Files No. 40994.11 and .12, January 6, 1942.

[21] Part V, Section 35, and 4; and Railway Act, 1927, Section 43.

[22] *Canadian Railway and Transport Commission Cases.* (55 C. R. T. C. 162), 1943; and (1943 Supreme Court Reports, Canada, 333).

[23] Privy Council Appeal No. 18 of 1944, *Canadian National Railways and Others v. Canada Steamship Lines and Others*, from the Supreme Court of Canada, Judgment delivered April 16, 1945.

[24] See Application No. 25 in the accompanying table.

which preceded the establishment of the agreed rate on salt for Canadian Industries, Ltd., from Sandwich, Ont., Shawinigan Falls, Quebec. This traffic moved by bulk steamship carriers during the season of navigation. This meant the seasonal employment of workers and consideration was given to the desirability of continuous employment. The actual average costs of transportation by water including loading, discharge, insurance and all other factors were compared with these incidental costs in connection with rail movement, including a saving of 12 cents per ton of salt which could be made if the salt were moved in winter and dried with exhaust steam which in winter was available and wasted and in summer had to be produced especially for this purpose. The resulting agreed rate was negotiated at a compromise figure between those which were suggested by the shipper and the railways.

The carriers are concerned with assuring themselves that the proposed rates cover all out-of-pocket costs and are, therefore, at least compensatory and that the shippers' estimates of costs via alternative means of transportation are adequate, all factors of cost considered.

The carriers and shippers, with whom the problem was discussed, generally concede that the agreed charges should as a minimum cover out-of-pocket costs and that when used have the advantage of assuring the carriers that traffic will actually move if the rates are established and that the shippers will be assured adequate and continuous service. If they agree upon the basis of charges the proposal is prepared to be submitted to the Board of Transport Commissioners for Canada for approval.

How Charges Are Based

Agreed charges in Canada are made upon various bases including: (1) mileage blocks; (2) mileage-block rates up to specified distances and standard rates for distances beyond this mileage limitation; (3) flat rates or all-commodity-all-distance rates; (4) specific rates from and to specific points; (5) specific percentages of standard rates; and (6) reductions under prevailing commodity rates. Some of the rates are carload rates and others are l.c.l. rates.

The agreed charges provided for in the agreed charge on petroleum products from refineries and marine terminals in Ontario to points in Ontario are based on a scale of charges made upon mileage blocks.[25] The charges on eggs from Manitoba and Saskatchewan points to Winnipeg, Manitoba, are based on mileage blocks up to 300 miles beyond which distance the standard rates are applicable.[26] The rates on toilet preparations, sanitary and surgical supplies, advertising matter and other commodities from Montreal to points in Ontario and Quebec are flat rates on mixed shipments.[27] On salt the charge from Sandwich, Ont., to Shawinigan Falls, Quebec, is a specific point to point rate.[28] The agreed charge on lumber and forest products is approximately 5 per cent less than the normal lumber commodity rates which in turn are based upon 75 per cent of the tenth class rates on the standard Prairie Mileage Scale applicable in Western Canada.[29]

There is, therefore, no single basis upon which agreed charges are made. The Board of Transport Commissioners in discussing the basis for agreed charges on coal from mines in Saskatchewan to destinations in Saskatchewan and Manitoba stated:

"There is no uniform basis for proposed rates which to each destination are predicated upon taking into consideration actual or potential highway delivery and the competitive situation to that particular destination. Proposed rates are such that when added to lower price of shipper for coal itself will produce a laid-down price at each destination calculated necessary to enable rail shippers to have their coal marketed in competition with coal truck direct to consumer." [30]

Regulatory Policy

The Board of Transport Commissioners for Canada has the statutory duty of determining that: (1) agreed charges are established only in cases where the ends sought to be attained cannot be achieved by any other form of rate making; (2) the agreed charges are reasonably compensatory; and (3) the effects of the proposed agreed charges upon the traffic and revenues of other regulated transportation carriers have been adequately considered.

Although the Board has made no comprehensive studies of railway or other transportation carriers costs under various conditions of operation, it, like other students of transportation costs and regulatory bodies, has some rule-of-thumb criteria for determining the adequacy of rates in producing revenues per car-mile and per ton-mile.

No particularly difficult regulatory problems are posed by agreed rates, other than the vexing problems raised by any attempt to regulate rates or charges. The availability of the agreed charges to any shipper upon the same basis as those established for other shippers appears to dispel any question of unlawful discrimination. The view was expressed by W. E. Campbell, director of traffic of the Board of Transport Commissioners, that the agreed charges were useful if no other rate-making device could be found for meeting the competitive situations but stated that in his own opinion agreed charge arrangements would be less useful than they are under present conditions if highway transport and bulk water carriers were subject to regulation in Canada. An attempt was made to provide for the regulation of motor carriers and bulk steamship carriers by the Board of Transport Commissioners for Canada but no provision for their regulation was included in the Transport Act, 1938. Instead the provision for the establishment of agreed charges by railways was incorporated in the legislation. Provision was made, also, for the protection of the interests of regulated steamship lines in the establishment of agreed charge arrangements.[31]

Pros and Cons

Although the number of agreed charge arrangements negotiated in Canada is not large the volume of traffic represented is substantial. Virtually the entire movement of petroleum products from the terminals at Great Lakes ports to bulk distributing stations in Canada is handled at agreed rates. This includes traffic which ordinarily would have moved by rail or motor carriers, including the vehicles of oil companies. An exception is made in the agreed charges excluding the movement of petroleum by small tank motor trucks operated by the shippers in short-distance services. It is estimated that between 70 per cent and 80 per cent of the long-haul petroleum products traffic in Canada and a substantial portion of the lumber traffic originating in Western Canada also is now covered by agreed charge arrangements.

Agreed charge arrangements are not of any particular service in affording the railways an opportunity to meet emergency competitive situations. The length of time required to negotiate the agreements, give them the publicity required by the statute, afford all interested parties an opportunity to protest, and to submit the proposal to the Board of Transport Commissioners for approval, precludes the use of this device in short-run competitive situations. On the contrary, it is a procedure useful in long-run competitive relationships.

Agreed rates appear to afford a means of inducing shippers and consignees to continue the heavier loading of freight cars induced by the orders of the Transport Controller during the War.[32] Agreed charges lower than standard rates could be used contingent upon a relatively high carload minimum weight basis to compensate shippers or consignees for higher carloadings. Carload weights in Canada are consistently somewhat lower than the average of the same commodities in the United States, due chiefly to the requirements of shippers and consignees who require smaller unit shipments, particularly those made to smaller communities or dealers who cannot use or accumulate sufficiently large quantities of goods of many kinds to make up the higher minimum weight carloads. The average loading of all carload freight traffic in Canada was 33.7 tons per car in contrast with 41.01 tons per car in the United

(*Continued on page 756*)

[25] C. T. C. (A. C.) No. 11, effective September 1, 1940.
[26] C. T. C. (A. C.) No. 18, effective March 1, 1941.
[27] C. T. C. (A. C.) No. 12, effective September 1, 1940.
[28] C. T. C. (A. C.) No. 25, effective December 1, 1941.
[29] C. T. C. (A. C.) No. 15, effective October 1, 1940.
[30] Board of Transport Commissioners for Canada, Ottawa, (Judgments, Orders and Rulings 455), 1940.
[31] Transport Act, 1938, Part I, 3 (1); and Part V, 35 (1), and 36 (1).
[32] Orders Nos. TC 04F-1 and 05F.

First Things First for Safety

Suggestions for practical and effective accident prevention in locomotive shops and enginehouses

By L. W. DUTTON and G. G. GRIEVE†*

A GOOD accident record can be achieved at enginehouses and locomotive shops with a minimum expenditure of time and effort. A recent study by the National Safety Council of 515 reports of lost-time injuries to hostlers, machinists and other employees indicates how it can be done. The reports are a cross section of accident experience on various railroads.

Accidents may involve many kinds of materials, tools and machines. They may happen in performing numerous kinds of work, and they may be due to several hundred different causes. The prevention of injuries, therefore, may seem to be a complicated job requiring a great deal of time in widely scattered efforts—a discouraging outlook to supervisors. Fortunately, however, most accidents occur at relatively few sources and from relatively few causes. This characteristic provides a logical and sound approach for preventing injuries by concentrating on the causes that produce most of the trouble at the principal sources.

This method of attack is especially suitable for supervision. Foremen may utilize their time and effort where the most good can be accomplished. Injuries to employees, like unnecessary damage to tools or machines and many delays, are the results of inefficiencies which good supervision constantly strives to eliminate. The most efficient organizations in all industries have excellent safety records.

The largest proportion of accidents in enginehouses and locomotive shops—30 per cent—happen in getting on or off, walking on, and performing two kinds of jobs on locomotives. Outstanding are unsafe methods and practices in making repairs to steam lines and other parts under pressure. The prevention of injuries in doing this work, therefore, requires special attention from supervision.

Many kinds of hand and power tools are used around enginehouses and shops, but this does not make the prevention of tool accidents a complicated problem. Three-fifths of all hand-tool accidents involve only four types—bars, wrenches, hammers and jacks. The effect of insisting on a few important safe practices in using these few tools will influence the safe use of other types.

Handling and placing parts, tools, and equipment by hand is a big source of accidents in railroad shops and departments of many other industries. However, the problem can be solved efficiently. The accompanying tabulation lists other problems in the order of their relative importance.

Analysis of 515 Lost-Time Injuries in Shops and Enginehouses

Sources of injuries	Per cent of total cases
Total	100
Working on or around locomotives	30
Parts under pressure and fireboxes	10
Falls	9
Removing locomotive parts	6
Getting on and off	5
Using tools	24
Bars	4
Wrenches	4
Hammers	4
Jacks	2
Air hammers	1
Blow and cutting torches	1
Shaker bars and power shakers	1
Fire rakes, hooks, etc.	1
Other	6
Handling and placing material and tools	14
Operating machine tools	7
Walking over or near pits	5
Operating cranes and hoists	4
Walking on floor and ground	4
Using ladders	2
Dust particles (eye injuries)	2
Operating trucks (power and hand)	1
Locomotive in motion	1
Other	6

Now that we have located or identified the bad spots for accidents, the next question is "What should be done about them?" If more is not done in the future than has been in the past, these sources will continue to produce most injuries.

Falls While Taking Sand and Performing Other Jobs on Locomotives Account for Almost 10 Per Cent of All Accidents

Accidents are caused by unsafe practices, unsafe conditions, or a combination of both. The delays, expense, and other losses from accidents are mostly due to ordinary unsafe practices. Therefore, safer methods must be developed and adopted and workers must be trained in the right way to do the job. The practical and logical approach is to concentrate on the unsafe practices and conditions which produce frequent injuries of the most common kinds.

Accidents Around Locomotives

Outstanding as the greatest cause of accidents while working on and around locomotives are a few inefficient practices in repairing steam lines and other parts under pressure, and in starting fires. Any good foreman can easily eliminate these practices by issuing a few instructions and following through on them in performing his routine duties. It is merely necessary to mention the following unsafe practices to indicate the safe method and the instructions which should be given:

(1) Throwing kerosene, oil and similar highly-flammable substances on fires to start or quicken them.

(2) Failure to warn nearby workers to stand clear before opening injectors and valves.

(3) Failure to tag valves, injectors and similar parts before making repairs or performing duties involving danger from unexpected starting of moving parts which are near workers or on which employees are working.

(4) Working on steam lines and other parts under pressure without first releasing the pressure or draining them.

The foreman who insists on the right way to do this work can reasonably expect to eliminate half of all injuries that may occur in working on these parts.

Prevention of Falls

The prevention of falls in working on locomotives is a difficult problem. The fundamental cause of most falls is uncertain footing, due to the smooth curved surfaces of boilers. Running boards do not afford a safe working place and falls from them are numerous. A typical accident happened to a sheet-metal worker who was wrapping a steam pipe

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Unsafe Practice of Sitting with Legs Dangling in the Pit While Applying a Brake Shoe by Hand—Even with the Main Wheels Chained Against Movement, the Brakes May Be Set, Causing Badly Jammed Fingers or Hands

from a kneeling position on a running board. In shifting his position, he fell and fractured a hip.

The danger of slipping and falling may be offset by safer procedures and practices in some instances, according to the study. The use of ladders in making repairs on certain parts may eliminate some injuries. Other injuries may be prevented by warning workers on running boards and other places before locomotives are moved.

Dependence on the observance of safe practices, and particularly on an uncertain one such as "getting a firm footing" to overcome the fundamental danger of working on locomotives is not the surest answer to this problem. The elimination of hazard by mechanical means, such as a guard or other safety device, or a change in design or method, is generally far more effective. Many times the elimination of hazards by mechanical means has resulted in sharp increases in production in addition to improvement in accident records. Such developments often are the brain children of supervisors whose knowledge of the requirements of the work particularly fits them to provide an answer.

A practical way of providing safe footing is a challenge to the ingenuity of railroad mechanical men. Overcoming the hazard means the elimination of about 10 per cent of all accidents.

What about getting tool accidents under control, the second largest problem? Remember, three-fifths of all hand-tool accidents involve only four types of tools: bars, hammers, wrenches and jacks. Therefore, these kinds should receive most attention from supervision.

A foreman will do a first-class job in stopping bar accidents by concentrating on two key points only in using this tool, the "bite" and the posture of the workmen. Typical accidents involving these two factors occurred to valuable machinsts. One was pulling on a bar and socket wrench to remove a washout plug. The bar slipped because he did not have a good "bite," and fell on his foot, severely bruising the instep. The other machinist, while using a bar to move a crosshead, lost his balance and fell, fracturing a rib. He did not brace himself to prevent a fall in case the bar slipped.

Wrench accidents happen repeatedly because the jaws are not fitted in the proper position and tightly on the nut, or the correct type and size of wrench is not used, or the employee overexerts himself in pulling instead of using a longer wrench or other means of loosening the nut.

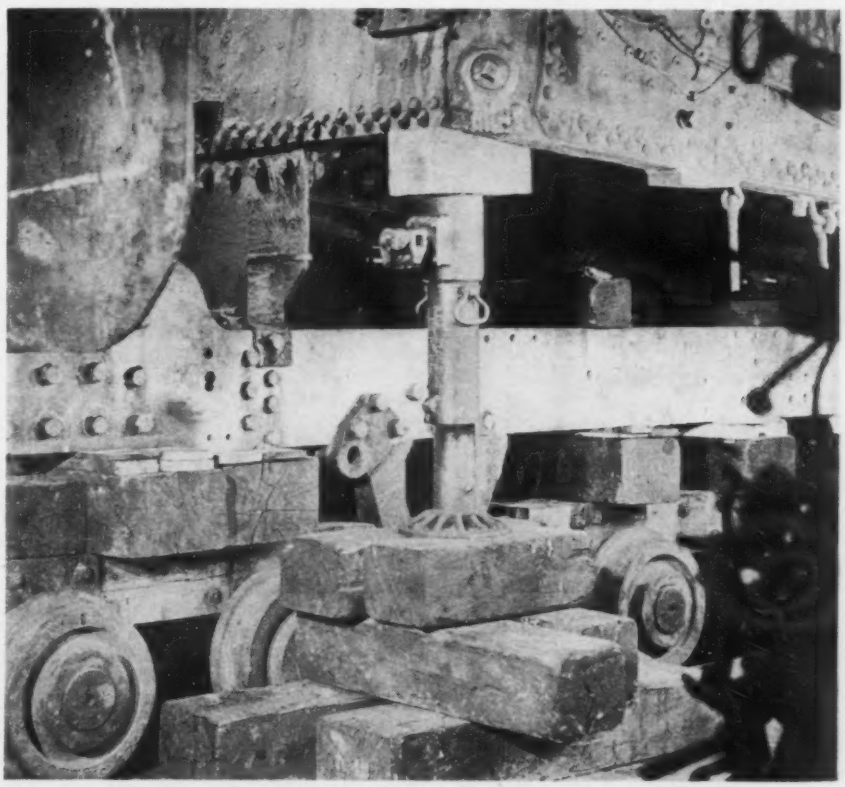
Other Injuries

Eye injuries in using hammers are frequent because goggles are not worn in removing cotter pins and striking pins and other parts which may produce flying particles. The use of hammers is only one of various sources of eye injuries. Such cases are so numerous that goggles should unquestionably be worn in enginehouses and railroad shops.

Fingers and hands are frequently injured from glancing blows due to failing to keep the eye on the point struck and having the free hand too close to the point of impact. Chisel holders are recommended for avoiding frequent injuries of this type in using sledge hammers.

Serious accidents in using jacks often occur because the jacks are not set squarely and properly blocked in raising or lowering loads. Other injuries are mostly strains due to improper lifting practices in handling such heavy tools.

An occasional demonstration of proper practices in using each type of tool requires only a few minutes and has proved effective in other industries having this problem. A foreman of a sheet-metal shop in the shipbuilding industry had a particularly serious problem with



Accidents Are Numerous in Using Jacks—Safe Practices Must Be Observed in Handling as Well as Setting Them

female workers. He had a good workman demonstrate how to use a hammer safely at a short meeting and followed through with an occasional correction when he detected an unsafe practice. After the first month or two, hammer accidents almost disappeared.

Handling Materials and Tools

The third major problem, namely, handling and placing materials and tools, involves numerous different unsafe practices. They can be readily observed and corrected in watching the progress of a job. Again the attack should be on the frequent ones.

A reminder to "take a good hold" is always in order in directing a job, and so is "lift with your legs instead of your back" accompanied by a demonstration and a brief explanation why. The heavy leg muscles are far more capable of raising a load than the light back muscles which, also, are subjected to greater strain due to the outstretched position of the body in lifting with the back.

A glance is sufficient for a foreman to judge the approximate weight of a part to be handled and instruct Tom or Joe to lend a hand. Shops are still full of workmen who overestimate their strength and men who hesitate to ask for help.

Safety shoes, like goggles, should definitely be worn in enginehouses and locomotive shops, according to actual accident experience. A safety engineer of a manufacturing plant found that the general use of safety shoes produced a larger reduction in handling accidents than could be expected from the number of toe injuries. The assumption was that the safety shoes campaign focused attention on safer practices in handling materials.

Instructions on safe handling should include placing materials and tools in secure positions. A typical accident happened to a boiler maker who put an air hammer on top of a frame in an unsteady position. It fell and struck him on the hands. Accidents of this type are most frequent around benches because tools and parts are placed too close to the edges. Supervisors have a special obligation to observe and correct these practices, because the injured workmen are often not the workers guilty of the bad practice.

Control over problems which, numerically, are most important is a big step in achieving a good accident record. But an all-round job includes control over sources and causes producing the most serious injuries.

Accidents involving locomotives in motion provide excellent examples of the need for doing more about the circumstances and causes of the worst accidents. The study indicates that moving locomotives around enginehouses and shops is the principal source of deaths and accounts for many other serious injuries. The severity of the injuries far outweighs the fact that only one per cent of all injuries were due to being struck by moving locomotives.

Safe practices by employees must be relied upon for eliminating these cases, according to reports from railroad safety departments. Supervision must be particularly alert to correct unsafe acts, such as sitting on tracks, signaling while standing in the tracks of an approaching train, walking across tracks without looking both ways, and to warn workers to be particularly watchful during rain and snow storms. Responsibility also must be shared by hostlers and other operators of locomotives, who must keep a sharp lookout and warn workers on the tracks.

The loss of fingers and other permanent disabilities are most numerous in operating machines. A foreman can eliminate two major causes of machine accidents if he will require a high standard of maintenance and observance of just one safe practice—a machine must be stopped and secured against unexpected motion by tagging or locking the starting mechanism, if necessary, before making any adjustments, repairs, or performing other work near moving parts.

Safe Crane Operation

Serious injuries also happen frequently in operating overhead cranes and hoists. The principal trouble in railroad shops is poor hitching of loads, a less frequent cause in other industries using this equipment. This may be due to the variety of shapes and sizes of loads handled in railroad shops and to hitching by different employees instead of a regular and trained hitcher.

A craneman is usually well informed on correct hitching, and, after the foreman, is next best qualified to improve practices. A craneman may have the authority to direct hitching and refuse to move a load which he considers unsafely hitched.

Failing to keep in the clear when loads are raised or lowered is another outstanding unsafe practice resulting in frequent and serious injuries to men on the floor. Cranemen also may be authorized to refuse to raise or lower a load until everyone is in the clear.

Chain hoists and small air or electric hoists also cause many injuries. Here, on a smaller scale, the causes are much the same as involved in crane accidents, unsafe hitching, improper balancing of the load, failure to allow for swing when picking up load, failure to keep feet or other parts of body clear of the suspended load. Operations with these small hoists usually involve one man, or not more than two, and signals and misunderstandings generally do not enter the question. Avoidance of unsafe practices which cause the accident depends upon the individual employees.

It should be emphasized that in general the proportions of locations and types of accidents set forth in this article tend to remain constant in any railroad shop, allowing for local conditions and practice. In most shops the number of injuries that occur in a year is too small to permit a profitable analysis. However, physical conditions and human nature are the same in the small shop or enginehouse as in the large. Accidents tend to occur from the same causes and in the same proportions over a period of time, and the primary objectives in order to bring about the maximum possible reduction of injuries should be the same in the former as in the latter.

A safe shop is not made in a week or a month. Only sustained work in the elimination of the causes of accidents will do the trick. The logical line of attack, and one that will pay big dividends in a large or small shop or enginehouse, is to put first things first.

Agreed Charges

(*Continued from page 753*)

States in 1943 and 39.6 tons per car in November, 1944.

Agreed charges may be placed upon a zone or territorial basis or upon mileage block scales in order to compensate for great differences in distances of hauls.

The principal opposition to agreed charges in Canada appears to be from those who fear the effect of this basis of rate making upon the traffic and revenues of other types of carriers, particularly motor carriers and unregulated water carriers.

C. I. T. League Opposition

The Canadian Industrial Traffic League is on record as against agreed charges, although a number of prominent members of the League are opposed to this policy and several are parties to agreed charge arrangements. The League has stated its broad policy with respect to rate-making in language which does not appear to the writer to preclude the use of agreed charges, viz.:

"Rates that are based on the carrier's cost of performing a transportation service and that also reflect the relative value of such service to the user should assure the carrier an adequate return and also permit the widest economical movement of goods at charges which they can relatively best bear." [33]

The proponents of agreed charges do not claim that they are a panacea for the quick relief of all rate and competitive problems. They urge, however, that they may be used as a device in rate-making which, if equitably administered, enables shippers and carriers to work out mutually satisfactory rates through the consideration of the interests of carriers and shippers and the assurance that the resultant rates will be compensatory and that they will be what the traffic will bear. The interests of other shippers and receivers, and of competing carriers, of course, must be protected adequately by public regulation in order to avoid unjust and unreasonable discrimination, preference or prejudice.

[33] The Canadian Industrial Traffic League, *Canadian Transportation Policy*, Toronto, June 5, 1944, Appendix, Regulation of Details, p. 9.

GENERAL NEWS

Kelly Urges Heavy Carloads Continue

War-time economies must be kept to retain efficient post-war service

Walter Kelly, assistant to vice-president, traffic, Association of American Railroads, has proposed that railroads and shippers co-operate to retain for their mutual peacetime benefit the economies effected during the war by extracting maximum ton-miles per unit of car equipment. Writing in the news letter of the Washington Traffic Club, he says in part:

"The lessons learned from the war are constructive. The railroads were able to operate the transportation plant substantially to capacity far beyond that anticipated. Cooperation was the basis for that performance. By cooperation I mean that the public, the Army, Navy, Marine Corps, Coast Guard, War Production Board, Office of Defense Transportation, Interstate Commerce Commission, Reconstruction Finance Corporation and its subsidiaries, Department of Agriculture, Procurement Division Treasury Department and other government organizations all put their shoulders to the wheel. O. D. T. General Orders Nos. 1 and 18 and I. C. C. Service Order No. 68 implemented and facilitated that cooperation.

"In 1939 net ton-miles per serviceable car day were 610 and in 1944 1,114, an increase of about 83 per cent. In 1939 the average tons per car originated, carload traffic, was 36.8 and in 1944, 40.3 after having reached an all-time high of 41.0 in 1943. Stated another way, in 1939 the public used 74.2 per cent of the average capacity of freight carrying cars, in 1943 81 per cent and in 1944, 79.3 per cent of that capacity.

"In the preceding war the taxpayers paid a deficit from federal operation of nearly $2,000,000 per day. In this war the railroads paid federal income taxes of more than $3,000,000 per day so that the saving to the taxpayers was approximately $5,000,000 per day. In the previous war the average revenue per ton-mile increased from 0.849 cents in 1918 to 1.275 cents in 1921, but in this war the average revenue per ton-mile was reduced from 0.973 cents in 1939 to 0.949 cents in 1944.

"It has been said that General Orders O. D. T. Nos. 1 and 18 and Service Order No. 68 benefited only the railroads. The fact is that the public and the goverment received a substantial dividend out of improved performance. In May 1943 the Interstate Commerce Commission suspended the Ex Parte 148 freight increase, approximately $250,000,000 per year, granted in March, 1942, partly to offset increased costs of labor and materials. This was in addition to the saving in taxes and the reduction in the average revenue per ton-mile. That was the dividend that the government and the public received out of operating economics.

"The Interstate Commerce Commission issued Service Order No. 68 upon recommendation of the Bureau of Service, Bureau of Inquiry and Bureau of Traffic. In the report which accompanied the recommendation the following appears:

"Numerous investigations conducted by the Bureaus of Inquiry and Service have developed that the use and, more particularly, the misuse of Rules 24 and 34 have resulted not only in loss to the carriers' revenues but also in the employment in transportation service of a great many cars which were not loaded to capacity but carried only light loadings below the minimum capacity of the car."

"Operating economies should be continued in the post-war period if this country is to have adequate and cheap transportation. Utilization of available capacity of freight carrying cars is an important factor. Stated another way, this means continued heavy loading. There are several ways that this can be brought about, such as lower rates for heavier loads, increased carload minimum weights, modification of Classification Rules No. 24 and 34 and similar substitution rules in exceptions and commodity tariffs. In other words some way should be found more nearly to fit loads to cars and not cars to loads. All this will require cooperation just as it required and received cooperation during the war. The railroads need that cooperation if they are to continue to render adequate transportation at a reasonable cost."

Three Railroads Plan to Renew Chicago-Florida Service

Officers of three railroads with terminals at Chicago will hold a meeting in that city on November 12 or 13 to complete plans for the re-establishing this winter of one-night-out trains between that city and points in Florida. The three roads are the Pennsylvania, Illinois Central and the Chicago & Eastern Illinois.

It is expected that the meeting will result in returning to service of the former seasonal "Sunchaser" of the Illinois Central; the "Jacksonian" of the Pennsylvania; and the "Dixieland" of the Chicago & Eastern Illinois, these trains to be operated in conjunction with connecting roads in the South and the southeast.

Carrying both sleeping cars and coaches, the trains will leave Chicago on alternate days to provide daily service to points on the East coast of Florida, terminating in Miami. Tentative schedules provide for morning departures from Chicago with late afternoon arrivals in Miami on the following day.

9 Months Net Income Was $452,000,000

Net railway operating income for the same period was $766,890,094

Class I railroads in the first nine months of this year had an estimated net income, after interest and rentals, of $452,000,000, as compared with $502,930,968 in the corresponding period of 1944, according to the Bureau of Railway Economics of the Association of American Railroads. The nine-months net railway operating income, before interest and rentals, was $766,890,094, compared with $843,784,954 in the same period last year.

September's estimated net income was $10,200,000, compared with $55,544,824 in September, 1944; while the net railway operating income for that month was $43,976,188, compared with $90,128,547. In the 12 months ended with September, the rate of return averaged 3.67 per cent, compared with 4.05 per cent for the 12 months ended September 30, 1944.

Operating revenues for September totaled $678,878,856, compared with $798,853,408 in September, 1944, while operating expenses totaled $620,955,711, compared with $521,081,648. Gross in the nine months totaled $6,930,096,168 compared with $7,080,146,600 in the same period of 1944, a decrease of 2.1 per cent. Operating expenses amounted to $4,912,982,037 compared with $4,662,405,103, an increase of 5.4 per cent.

Income Taxes Ease Off—Class I roads in the nine months accrued $1,113,299,794 in taxes compared with $1,423,140,258 in the same period in 1944. Nineteen Class I roads failed to earn interest and rentals in the nine months, of which ten were in the Eastern district, one in the Southern region, and eight in the Western district.

Class I roads in the Eastern district in the nine months had an estimated net income of $190,000,000 compared with $217,708,385 in the same period of 1944. For September, their estimated net income was $13,300,000 compared with $21,783,213 in September, 1944.

These same roads in the nine months had a net railway operating income of $325,319,890 compared with $358,464,102 in the same period of 1944. Their net railway operating income in September amounted to $27,653,015 compared with $33,302,129 in September, 1944.

Gross in the Eastern district in the nine months totaled $2,924,102,186, a decrease of 5.5 per cent compared with the same period of 1944, while operating expenses totaled $2,183,405,838, an increase of 1.3 per cent.

(*Continued on page 761*)

"Integration" Idea Is Misrepresented

Proposal denounced as "monopoly" when its goal is to vitalize competition

The Transportation Association of America in a bulletin to its members goes into the denunciation its "integration" or "department store" proposal for transportation has received, especially at the hands of motor transport interests—and at the hands of truck manufacturers. Either through ignorance or for less excusable reasons, says the Association, its program is being represented in terms which are the very opposite of its actual purposes. The bulletin reads, in part, as follows:

"One of the objections voiced—sometimes honestly, though in ignorance, and sometimes dishonestly and with full knowledge and understanding—is that the plan for integration or common ownership of the various types of transport so that there would be transportation companies operating, under unified managements, all types of transportation instrumentalities, would abolish competition. The plan, as we visualize and advocate it, calls for *competing* transportation companies—not *monopolies*.

"There would, presumably, be some railroad companies and some motor transport companies, some air transport companies, and so on, that, either because of unwillingness to enter into a combination or because the particular situation did not call for such combination in the public interest, would continue to operate 'on their own.' So, of course, there would be some continuance of that sort of competition. No 'independent' agency of transport would or could be compelled to become a part of any integrated transportation system.

"Suppose even that there were no 'independent' railroads or trucking concerns left, but all were incorporated into these transportation systems. Is it to be supposed that the general management and the man directly in charge of each type of transport included in a transportation company would not keep their eyes on their competitors? If one transportation company, for instance, developed some new method or gadget in motor transport, would not a competing company rise to the occasion, see the bet, and even raise it? Much of the misunderstanding and opposition to our program comes from wilful or careless interpretation of it. We are represented as advocating *monopoly*, whereas *competition* in private enterprise is our cardinal principle.

Motor Transport Opposition—"A good deal of the opposition to our plan for integration or common ownership of transportation instrumentalities comes from those engaged in motor transport or in manufacturing trucks or other things that are used in motor transportation. Their reason is obvious—they fear to lose business. It is of no avail to say that this is a selfish motive and ought not to be maintained to the detriment of public interest—which is the most efficient transportation possible at the lowest possible rates to users, and the placing of transportation on such a sound basis that the failure of private investment in it will not result in the government taking over. It must be demonstrated to them that their fear is groundless even for the immediate future and, certainly, in the long run.

"The 'long run' consideration is the preservation of the business of transportation in private hands and would justify some sacrifice of immediate profit. But there is no good reason to fear even that sacrifice. If integration or common ownership were permitted by law and all the independent agencies of transportation of all types were consolidated into a number of competing transportation companies operating any and all types of instrumentalities, why should it be feared, for instance, that there would be fewer motor trucks used than at present under our system of competition for the same business by different types of transport?

Airport Program—"Congress is now in the throes of enacting a law to provide money for a federal airport program, based on a plan, as popularly expressed, 'to do for airplanes what the building of great highways did for the automobile.' The sum agreed on will be substantial—certainly not less than the amount in the Senate bill, which is $125,000,000 less than the House figure.

"The citizen will have to decide how much he is willing to pay in taxes for this development, outside of considerations of national defense, and how far public aid may be carried without unfairness to competing modes of transport. None of the bills in Congress makes any provision for repayment by air transport companies of the benefits they receive—as was required of the railroads, for instance, in the matter of 'land grants.' In considering the airport bills, it seems to us, the entire transportation picture and the whole public interest ought to be kept in mind."

To Rebuild Mexican Rail Line

On November 1 at a press luncheon in New York, Samuel Rosoff, president of Samuel Rosoff, Ltd., New York subway contractors, said that within sixty days he will try to arrange financing for a $50,000,000 industrial development in northwestern Mexico, involving the purchase and rehabilitation of the Mexico North Western Railway Company—a privately owned carrier running between El Paso, Tex., and Chihuahua, Mexico—and development of adjacent railroad-owned forest lands for industrial purposes.

Seatrain Seeks N. J. Pier Site

Seatrain Lines, Inc., has contracted to purchase from the New York, Susquehanna & Western a new pier site on the New Jersey shore of the Hudson river at Edgewater, N. J., with a view to resuming service from that point next year. The railroad has petitioned the United States district court at Newark, N. J., for approval of the contract which involves the sale of about three acres of railroad property on which Seatrain plans to construct a 500-ft. pier, cranes and other equipment to handle two car ferries at one time. Hearing has been set for November 17.

Pullman Ordered to Select Bid by Dec. 3

Court to reveal its choice by Dec. 10—Direction follows hearing of four bids

Following two days of testimony by the four bidders seeking to purchase the $75 million Pullman sleeping car services, a special three-judge United States District Court, in Philadelphia, Pa., on November 6 ordered Pullman, Inc., to report to the court by December 3 its choice of the four purchase offers. The court, composed of Senior Circuit Judge John Biggs, Jr., presiding, and Circuit Judges Albert B. Maris and Herbert F. Goodrich, will make known its selection one week later. In the event of disagreement, all four petitioners will be heard in oral argument on December 10.

At the same time the court ordered former Senator George Wharton Pepper, counsel for Pullman, Inc., to submit a brief on a point raised by him at the outset of the hearings, November 5. The Senator had questioned the right of the court to designate a purchaser, holding it was the court's business only to put an end to the alleged monopoly, and insure that Pullman "should once and for all retire from the sleeping car business."

Presiding Judge Biggs also asked the government (i. e., the Department of Justice) to submit its written opinion of the four purchase proposals, stressing whether or not they comply with the court's decree of March 22, 1945.

Otis Group Heard First—Hearings on the four bids (see *Railway Age*, November 3, page 721, for details) were begun November 5 and ended the following day. Upwards of 50 attorneys represented the various interested parties—the Otis & Co. group, the firm of Glore, Forgan & Co., the Standard Steel Spring Co., the group of 27 petitioning railroads, Pullman, Inc., the Justice Department, which initiated the anti-trust suit against Pullman, Inc., and the deputy attorney general of California, who presented argument in support of the petition of California and Colorado opposing the sale of the Pullman Company to the railroads.

The petition of Otis & Co. was heard first, with testimony being given by William R. Daley, president of this investment banking house, by Robert R. Young, chairman of the board of the Alleghany Corporation, and by Carl E. Newton, president of the Chesapeake & Ohio. The Otis group, which had offered about $75 million for the Pullman sleeping car services, including $19 million cash to be paid for laundries, shops and other fixed properties of the Pullman Company, stated its intention to spend $500 million for new streamlined lightweight sleeping car equipment to replace "obsolete cars" which Mr. Young claimed should be "legislated against to get them off the tracks."

Mr. Young declared he first interested himself in the Pullman situation, on May 20, 1945, when he was "distressed to learn" that no plans had been made for the future

of the Pullman service, although over five years had elapsed since the government had filed its anti-trust suit against Pullman and more than two years had elapsed since the court had ordered Pullman, Inc., to divest itself of either its manufacturing or sleeping car business. In an interview June 12, 1945, with D. A. Crawford, president of Pullman, Inc., Mr. Young said he was advised that neither Pullman nor the railroads was ready with a post-war Pullman program. Mr. Young said he told Mr. Crawford at that time that he "could not, as a railroad official, sit idle and see the sleeping car situation deteriorate further . . . and if it is necessary to break the deadlock and get action," he was "prepared to organize a syndicate to purchase the Pullman Company's equipment and offer a new and progressive pool service for the benefit of all the railroads and the country."

Mr. Young further stated that the management of the Chesapeake & Ohio had been instructed by its board to see that the C. & O. sleeping car service was second to none, adding "and that is what I am trying to do now. Apparently the only way I can do it is to buy the Pullman sleeping car business." Cross-examined by John Dickinson, Pennsylvania general counsel, Mr. Young avowed willingness, if necessary, to give up his affiliation with the Chesapeake & Ohio and the Alleghany Corporation to run the sleeping car business exclusively. Though he said he was not qualified to speak for them, he felt that others in his bidding group "would be motivated by the same considerations."

The promotion of travel will be a principal aim of the Otis group, according to Mr. Young, who looks for Maine school children to see "the giant redwoods," and California school children, the Statue of Liberty.

Want Car Pool Retained—Mr. Newton, as president of a road which uses few sleeping cars, contended that were the 27 railroads bidding to come into possession of the Pullman sleeping car services, their acquisition of the service would be detrimental to the interests of the smaller roads. All three Otis witnesses emphasized the need for a sleeping car pool independent of railroad management.

Charles F. Glore, a member of the investment banking firm of Glore, Forgan & Co., Chicago, was the sole witness for this group. He stressed the fact that neither he nor any of his partners was an officer or director of any railroad or any company engaged in the manufacture or sale of railroad supplies or equipment, and that neither he nor any of his partners were connected with Pullman, "except that one of my partners owns 100 shares of capital stock of Pullman, Inc."

The Glore-Forgan offer, he said, "seeks to accomplish the objectives of the decree of this court in this matter by the sale to the public of the capital stock of the Pullman Company," a procedure which "has met with court approval in similar anti-trust legislation." More than 40 underwriters back the Glore-Forgan proposal, none of which "is believed to have any important investment banking connection with Pullman, nor with the railroad industry generally."

The witness for the Standard Steel Spring Company was Robert C. Enos, president of the concern. Mr. Enos stated that if his company should accede to the ownership of Pullman, he would assume the presidency of that company. Lightweight sleeping cars would be sold to the railroads, he said, and the heavyweight cars would become part of a pool upon which all other railroads could draw. He also contemplates conversion of some of these cars into combination sleeper-coaches, which, he said, would be an advantage on runs where there was little demand for sleeping car services. Drawings were admitted in exhibit.

These three bidders asserted there would be no change in existing labor contracts or employee rights, Pullman group insurance or pension benefits.

Then followed witnesses representing the 27 railroads petitioning. (Since filing their petition on October 29, five more roads have joined the group—namely, the Erie, Kansas City Southern, Delaware & Hudson, the Atlanta & West Point, and the Chicago & Eastern Illinois.

Would Eliminate "Middle Man"—The first railroad witness was W. S. Franklin, vice-president, traffic, Pennsylvania, and former president of the Wabash, who answered the questions put to him by John Dickinson. Mr. Franklin, in refutation of the opinion that the railroads had been backward in improving travel service, emphasized the improvements that had been undertaken prior to the war, noting air-conditioning, and general modernization, including lighting, wide windows with non-shatter glass, improved trucks, springs, running gear, etc. He asserted that as the railroads improve their coach service, there will be a tendency for the public to draw away from the Pullman sleeping car, "and to that extent there is a definite conflict of interest between the railroad-operated coaches and the Pullman-operated sleeping cars." In short, he said, this would necessarily work against such an independent operator of Pullman sleeping car service as the Otis group. However, Mr. Franklin pointed out, "if the railroads owned and operated both the coach equipment and the Pullman equipment, then obviously through a better control over the equipment, as well as a closer relation between the charges applicable in the two types of equipment, the service to the public could be rendered at a lower cost in the Pullman sleeping cars than if it were necessary to pay for the profits of an outside owner of this equipment."

There were numerous queries from the bench throughout the hearing on the possibilities of transcontinental service. Mr. Franklin said that the railroads are now considering such service, and have been for a number of years. Recently, he observed, a program had been sent to a number of western roads, but it is now impossible to predict the outcome of through coach and Pullman service from coast-to-coast. If examination shows there will be sufficient traffic to justify this move, then obviously the railroads will do all possible to effect the improved service, he assured the court.

Gustav Metzman, president of the New York Central, outlined several reasons why the railroads should acquire the sleeping car business. "The railroads are primarily responsible for the furnishing of sleeping car service on their lines," Mr. Metzman explained, with the railroad, rather than the Pullman Company, making the time schedules and hauling the sleeping cars. Moreover, "the determination of the consist of trains, the number and character of sleeping cars on trains, the speed of trains, the times of arrival and departure and all such other elements, must necessarily be determined as between the Pullman Company and the railroad company by the latter," he said.

Railroads' Public Duty—Thus in the "very nature of things," the quantity and the quality of the sleeping car service must devolve upon the railroad, which has both a duty to the traveling public and the financial obligation as well of furnishing the service. Mr. Metzman referred specifically to the many roads in this country which conduct this service at an out-of-pocket loss, making up to the Pullman Company all deficits in operating expenses, including depreciation. "It is clear that the Pullman Company, not having the obligation to furnish sleeping car service on any particular railroad where the sleeping car service is unprofitable, could not be expected to render that service unless the cost of its operation was underwritten," Mr. Metzman reasoned. Not so with the railroad, he added, to whom the public looks "for a rounded-out service, even though certain types of that service are necessarily rendered at a loss."

Responding to a question from Jacob Aronson, vice-president law, New York Central, Mr. Metzman further asserted that, if the railroads "are at the mercy of an outside organization which is imposed upon them against their will for the performance of one of their own functions," the railroads will be "robbed of the opportunity of protecting their important financial interests and public service obligations."

Violence Flares Up on the T. P. & W.

The striking employees of the Toledo, Peoria & Western have resorted to violence, according to George P. McNear, Jr., president of the line. This railroad has been inoperative since October 1, when it was turned back to its owners by the government and a simultaneous embargo and a strike were declared, respectively, by the management and unions representing the employees. On October 26, the master mechanic, the president and an attorney visited East Peoria yard with the idea of preparing a locomotive to switch coal to a large power plant which supplies Peoria and surrounding communities with light. The striking employees were said to have scattered nails and tacks at the entrance to the yard, to have stopped the automobiles as they were leaving the yard and to have attempted to overturn them. On the same date the telephone wires leading to the offices of the superintendent, master mechanic and numerous other officers were cut, the power lines supplying the water pumps were cut and the water tank was drained. Mr. McNear also alleges that missiles were thrown through the engine-house windows and that shots were fired

when employees tried to get a locomotive ready for service.

These statements were made to the Interstate Commerce Commission by Mr. McNear after shippers' groups interested in getting the railroad in operation again complained to the I. C. C.

Freight Car Loading

Loadings of revenue freight for the week ended November 3 totaled 851,962 cars, the Association of American Railroads announced on November 8. This was a decrease of 2,817 cars or 0.3 per cent below the preceding week, a decrease of 41,107 cars or 4.6 per cent below the corresponding week last year, and an increase of 97,223 cars or 12.9 per cent above the comparable 1943 week.

Loading of revenue freight for the week ended October 27 totaled 854,779 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For Week Ended Saturday, October 27

District	1945	1944	1943
Eastern	156,435	168,515	166,561
Allegheny	174,606	194,505	187,958
Pocahontas	55,535	57,075	51,929
Southern	125,071	126,228	116,810
Northwestern	134,177	138,902	143,681
Central Western	145,258	151,914	138,932
Southwestern	63,697	79,346	77,856
Total Western Districts	343,132	370,162	360,469
Total All Roads	854,779	916,485	883,727
Commodities			
Grain and grain products	57,484	55,721	58,181
Live stock	28,005	27,479	26,978
Coal	182,805	176,808	146,192
Coke	8,613	14,150	15,375
Forest products	34,642	45,102	43,911
Ore	58,611	67,490	77,311
Merchandise l.c.l.	116,524	110,177	106,544
Miscellaneous	368,095	419,558	409,235
October 27	854,779	916,485	883,727
October 20	773,427	906,005	905,419
October 13	754,521	898,720	912,348
October 6	767,985	877,035	906,357
September 29	832,263	912,627	910,644
Cumulative Total 43 Weeks	35,147,826	36,344,310	35,405,716

In Canada.—Carloadings for the week ended October 27 totaled 78,755 (a high record for the year), as compared with 77,374 for the previous week and 78,736 for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

Totals for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
October 27, 1945	78,755	31,617
October 28, 1944	78,736	39,097
Cumulative Totals for Canada:		
October 27, 1945	2,992,494	1,514,376
October 28, 1944	3,033,894	1,651,095

Troop Movement Crisis Seen for Next Two Months

With an estimated total of 2,000,000 war veterans scheduled to be home by January 1, November and December will be the most critical months to be faced by the railroads in their wartime passenger transportation job, according to E. P. Burke, passenger traffic manager of the Pullman Company.

Based on the latest military estimates, which are being constantly revised, more than 3,500,000 men will have been returned to America by July 1 of next year. Of this total all but approximately 620,000 will be from the Pacific theater. It is this factor which will strain railroad and Pullman facilities to the utmost, because the long trips from the West coast, keeping loaded cars in use for several days, and the necessity for deadheading empty cars West to meet incoming ships present one of the major obstacles in the task of transporting arriving veterans.

During August and September a total of 1,449,000 troops in organized movements traveled in Pullman cars, and it is expected that the October figure will top this record.

A. S. T. M. 1946 Meetings

The American Society for Testing Materials will hold its 1946 spring meeting at Pittsburgh, Pa., during the week of February 25 to March 1, and the 49th annual meeting of the Society will be held in Buffalo, N. Y., from June 24-28, 1946, in conjunction with the Seventh Exhibit of Testing Apparatus and Related Equipment.

Southwest Shippers Advisory Board to Meet in Dallas

The Southwest Shippers Advisory Board will hold its 69th regular meeting at the Baker hotel, Dallas, Tex., November 15. The Executive, Railroad Contact, and Joint Loss and Damage Prevention Committees will meet on November 14.

Guest speakers for the November 15 session will be: W. C. Kendall, chairman, Car Service Division, Association of American Railroads, Washington, D. C., and R. C. White, chief operating officer, Missouri-Pacific Lines, St. Louis, Mo. Mr. White's announced topic is "A Rule for the Day."

D. & R. G. W. Opens New Tunnel

On November 3 the Denver & Rio Grande Western opened its new $800,000 tunnel which pierces a mountain at Tennessee Pass and reaches an apex of 10,242 ft. above sea level. This summit is exactly on the Continental Divide. The new tunnel is approximately 2,500 ft. long and has a 23 ft. vertical clearance which will permit freight loads of greater width and height than were possible through the old timber-lined tunnel which was built in 1890.

Bronze Star for Former Cleveland Railroader

Maj. Albert D. Hartzler, of Cincinnati, Ohio, formerly mechanical supervisor at the Cincinnati Union Terminal, recently was awarded the Bronze Star Medal at Marseille, France, "for outstanding service as mechanical engineer and as head of Requirements section, Headquarters, Second Military Railway Service, from May 1, 1944, to March 20, 1945."

It was noted that Major Hartzler was charged with the responsibility of ferrying from England to France 20,000 railway cars and 1,730 steam and Diesel locomotives. Avoiding bottlenecks by "alertness," he at the same time expedited the turn-around of the specially refitted L.S.T. transports, Headquarters holds.

Major Hartzler began railroading in 1919 with the New York Central, in the Bellefontaine, Ohio, enginehouse. His first army assignment was with the 721st Railway Operating Battalion, but he was transferred to the 2nd M.R.S. just before going overseas.

National Railway Historical Society Elects Officers

At its recent annual meeting in Philadelphia, Pa., the National Railway Historical Society, Inc., elected the following officers: President, E. G. Hooper; vice-president, charge of field trips, R. H. Shapley; vice-president, membership, J. G. Smith, Jr.; vice-president, publicity, E. L. Pardee; secretary, Hugh R. Gibb; treasurer, N. H. Thompson; and editor, L. R. Franks.

Declaring membership was fast approaching pre-war levels, President Hooper told the group financial conditions throughout the 18 chapters were never better. Mr. Hooper further said that the society on October 14 had co-sponsored over the Maryland & Pennsylvania what was believed to be the first "official" post-war steam rail-fan excursion. About 175 passengers made the trip from Baltimore to York, Pa., in three day coaches "of gay ninety vintage," a gas-electric car and one open flat car.

More About the A. S. M. E. Annual Meeting

At the railroad session to be held on Thursday morning, November 29, during the annual meeting of the American Society of Mechanical Engineers a report on Progress in Railway Mechanical Engineering will be presented by T. F. Perkinson, Transportation Division, General Electric Company, chairman of the Committee on Survey of the Railroad Division of the Society. This item was omitted from the program set forth on page 725 of the November 3 issue of the *Railway Age*. The meeting of the Society will be held at the Hotel Pennsylvania, New York, during the week ending Saturday, December 1.

Buford and Kendall Call for More Efficient Use of Cars

Chief operating officers of the Association of American Railroads' member roads have received from A. A. R. Vice-President C. H. Buford a circular urging their "considered attention and prompt action" to improve the present situation with respect to the condition, handling, and distribution of freight car equipment. The Buford circular was also sent to transporation officers by Chairman W. C. Kendall of the Car Service Division, who added his own similar appeal.

"Demands for box, automobile and refrigerator cars particularly exceed the supply available for distribution," Mr. Buford said. "Serious and widespread complaints are being received. Many of these complaints are made to members of Congress and government agencies, and are causing much anxiety in view of the splendid performance of the railroads in meeting all requirements of the government and the public up to the cessation of hostilities."

Cars Are Slowing Down—The A.A.R. vice-president went on to give figures on the serviceable car supply asserting that

the decline as compared with a year ago must be made up by improved handling and the maximum possible output from car repair shops. He also called attention to the fact that the turn-around time of freight cars is now longer "by nearly one day" than it was prior to V-J Day, and to the decreased length of haul per loaded freight car. "Taken together," Mr. Buford added, "these two items are indicative of a slack which the railroads can pick up, and which now has to be done if we are to avoid criticism. A gain of one day in the turning time of cars alone is equivalent to an increase in the available supply of about 50,000 cars."

Mr. Kendall attributed the situation described by Mr. Buford to reduction in working time by industries which has caused delays in loading and unloading; a feeling of "less urgency" because of the end of the war; fatigue of both men and cars after the strenuous requirements of the past four years; and the increasing number of unserviceable cars. "All of these adverse factors," he said, "are reflected in an increase in the turn-around time of freight cars which has the same effect as taking out of circulation approximately 70,000 cars in October compared with September."

Mr. Kendall added that copies of his and Mr. Buford's letters were being sent to officers of the Regional Shippers Advisory Boards and to all Car Efficiency Committees "to further promote the maximum possible support from such sources in measures of car efficiency." He also said that reports from the Car Service Division's field organization had shown "many instances of avoidable delays by railroads in the handling of cars." Because C. S. D. will be unable hereafter to continue making as many such reports as it did during the war, Mr. Kendall urged that all transportation inspectors of the railroads be utilized to cover the local field as fully as possible.

9 Months Net Income Was $452,000,000

(*Continued from page 757*)

In the South and West—Class I roads in the Southern region in the nine months had an estimated net income of $62,000,000 compared with $79,167,471 in the same period of 1944. For September, they had an estimated net income of $1,900,000 compared with $6,281,832 in September, 1944.

Those same roads in the nine months had a net railway operating income of $109,045,202 compared with $126,858,400 in the same period of 1944. Their net railway operating income in September amounted to $7,398,271 compared with $12,031,822 in September, 1944.

Operating revenues in the Southern region in the nine months totaled $958,725,090, a decrease of 4.4 per cent compared with the same period of 1944, while operating expenses totaled $648,674,505 or an increast of 4.1 per cent.

Class I roads in the Western district in the nine months had an estimated net income of $200,000,000 compared with $206,055,112 in the same period of 1944. For September, they had an estimated deficit of $5,000,000 compared with a net income of $27,479,779 in September, 1944.

Those same roads in the nine months had a net railway operating income of $332,525,002 compared with $358,462,452 in tht same period of 1944. Their net railway operating income in September amounted to $8,924,902 compared with $44,794,596 in September, 1944.

Gross in the Western district in the first nine months totaled $5,047,268,892, an increase of 2.1 per cent compared with the same period of 1944, while operating expenses totaled $2,080,901,694, an increase of 10.9 per cent.

CLASS I RAILROADS—UNITED STATES

	Month of September 1945	1944
Total operating revenues	$678,878,856	$798,853,408
Total operating expenses	620,955,711	521,081,648
Operating ratio—per cent	91.47	65.23
Taxes	886,846	168,445,646
Net railway operating income (Earnings before charges)	43,976,188	90,128,547
Net income, after charges (estimated)	10,200,000	55,544,824
	Nine Months Ended September 30, 1945	
Total operating revenues	$6,930,096,168	$7,080,146,600
Total operating expenses	4,912,982,037	4,662,405,103
Operating ratio—per cent	70.89	65.85
Taxes	1,113,299,794	1,423,140,258
Net railway operating income (Earnings before charges)	766,890,094	843,784,954
Net income, after charges (estimated)	452,000,000	502,930,968

Radio vs. Wire Lines for Telephone

The Bell Telephone Laboratories on October 31, demonstrated a heretofore secret but now de-classified microwave relay system known to the Army and Navy as AN TRC-6. Similar in principle to the Western Union system described in the November 3 issue of the *Railway Age*, it relays messages over visual distances. It employs carrier frequencies of about 5,000 megacycles and as set up, for demonstration between New York City and Neshanic, N. J., 40 miles away, it can transmit eight individual telephone messages each employing a 3,000-cycle voice channel. As many as 18 teletype messages may be transmitted on one of the voice channels.

Antennas for the AN TRC-6 System on the Roof of the New York Telephone Building, 30 Vesey Street

Each of the eight telephone messages are sent out in pulses, there being 8,000 pulses per second and each pulse lasting only one microsecond. By spacing the timing of the pulses, it is possible to send out eight separate pulses in sequence, none of which will interfere with another. The exact position of each pulse is modulated by the voice wave, the amplitude and frequency of this change providing 8,000 widely-spaced samples of the voice wave which are demodulated to produce a very exact reproduction of the original speech. By sending the message back and forth between the two stations over five reflectors and along each of the eight voice channels, it was possible to transmit a distance of 2,800 miles. This was accomplished without appreciable distortion.

The equipment, developed by the Bell Telephone Laboratories, was built by the Western Electric Company and was used effectively by the Army and Navy during the latter part of the war. Its commercial application has not been determined and the present experiments are being carried on to explore the use of microwaves as a supplement or alternative to wires and cables for communication purposes.

North Western's "Newsliner" Makes Its Bow

Number 1, Volume 1 of the "Newsliner," a magazine published by the Chicago & North Western for its employees, made its appearance this week after several weeks of preparation and planning. Containing thirty-six 11¼ by 8¼-in. pages of high-grade paper, the magazine has an impressive format and is made up with unusually large and clear illustrations.

Between the covers are several sections designed to appeal to the various classes of employees and dealing with their respective activities; several illustrated pages of news items, and timely articles dealing with the various phases of North Western railroading.

Holland to Restore Largest Railway Bridge

Repair of the two bridges (one railway, and one highway) across the Hollandsche Diep at Moerdijk, south of Rotterdam, is said by the Netherlands Information Bureau in New York to be "one of the most urgent" reconstruction jobs undertaken by the Netherlands government to restore railway and highway communications with the European continent.

The 8,430-ft. Moerdijk railway bridge, with six spans completely destroyed and three others severely damaged, will be raised 7 ft. to facilitate passage of larger vessels. Its single-track railway, built in 1870, will be changed to double track. The entire project for both bridges will take about three years, it is stated.

With the Government Agencies

I. C. C. Adamant on Class Rate Decision

Rejects petitions of truckers, western railroads, and northern shippers

Evidence that the Interstate Commerce Commission intends to stand its ground on the decision made earlier this year in the class rate case, except where special situations require specific treatment, was seen in its first supplemental report in the Nos. 28300 and 28310 proceedings, made public last week, in which numerous petitions for postponement of the effective date of the interim rate adjustments, and for further hearing or other action having the effect of deferring their application, were disposed of.

Eastern Objections—Objections of states and shipper interests in Official territory to that part of the interim order which requires a 10 per cent increase in interstate class rates within that territory were based, generally speaking, on the ground that such an increase could not lawfully be ordered without a finding that the present rates are not compensatory or are less than reasonable, or on the ground that, even if such a finding were made, the carriers must be afforded an alternative as to the manner of removal of such unlawfulness.

The latter contention the commission's report dismissed with a brief reference to the Supreme Court decision in *Texas & Pacific* vs. *U. S.*, 289 U. S. 627, and a related case, where it found support for the commission's view that it had met the statutory requirements, and that an alternative provision was not required. Taking up at some length the other objections, the report pointed out that the commission had found the existing class rates to be unreasonable, causing undue preference and resulting in undue prejudice, and so unlawful. Authority therefore exists, it added, in section 15(1) of the Interstate Commerce Act and section 5(b) of the Transportation Act of 1940, to prescribe the method for removing such unlawfulness.

Insists on Rise's Legality—"In requiring an increase in rates to remove unlawfulness," it went on, "we are not required first to find that existing rates, or proposed reduced rates initiated by carriers, are not compensatory," and citations of Supreme Court decisions were supplied in support of that finding. The territorial differences in existing class rates and their effect on the welfare of carriers, producers, shippers, and consumers, localities, districts, regions, and territories were "fully discussed" in the original report in No. 28300, the commission asserted (this report was summarized in *Railway Age* of May 26, page 937). Moreover, it said, the costs of service were considered, together with the consist of traffic, the distribution of the general rate burden, rate and revenue comparisons, rates of return of carriers, "and other matters." After such consideration, the commission concluded that the existing class rate structure in Official and Illinois territories results in undue advantage to shippers within those territories and undue prejudice to shippers in other territories, upon which ground, the report continued, it is empowered to "enter such orders as may be appropriate for the removal of any unlawfulness which may be found to exist."

Finds East's Basis Unlawful—Finally, "to remove any doubt" that the commission's findings already have been adequately stated in this respect in the prior report, this phase of the supplemental report concluded with a specific finding that the existing Official territory class rates are not only unduly preferential in character, but also less than just and reasonable rates, and so, in both respects, unlawful.

With respect to the contentions of the western railroads that findings of undue preference and prejudice were not warranted by the record, as to that territory, and that the effect of the reductions ordered will be greater on those roads than others, and impair their revenues, the supplemental report remarked that these and other enumerated objections "were considered by us in arriving at our original conclusions," and that, "insofar as the prospects of traffic and revenues in the immediate future can be foreseen, there is no reason to conclude that the interim adjustment will have any serious effect upon those respondents" (that is, the western roads).

"Intrastate class rates generally in most of the western states, and many of the interstate class rates in Western territory, are already lower than the interim basis prescribed in our prior report," the commission went on to say. "That is clearly shown in the prior report and is substantiated by the petition filed by the western rail respondents . . . for modification of our order respecting so-called sub-normal class rates. These respondents cannot consistently maintain these so-called sub-normal class rates and continue to maintain the relatively high basis of interstate class rates formerly prescribed by us as maximum in the western and southwestern class rate revisions." (In referring here to western roads and Western territory, the commission was not including Mountain-Pacific territory, since the No. 28300 investigation did not embrace class rates in that area.)

Need for Revenues—The record does not support the contention of the western roads that their revenue needs, with respect to class rate traffic, are greater than those of eastern lines, said the supplemental report. On the contrary, the reports of the

(*Continued on page 764*)

Hell Gate "Toll" Is Called Unreasonable

Discrimination found as "local" passengers are exempted from payment

In a proposed report in the No. 29284 proceeding, Examiner John Davey has recommended that the Interstate Commerce Commission find unreasonable the practice of the New York, New Haven & Hartford, New York Connecting and Pennsylvania of collecting a so-called "toll charge" from passengers traveling on trains crossing the Hell Gate bridge at New York, when such passengers have tickets between points in New England and points south or west of New York, but not making the same charge when passengers have tickets between New England points and Pennsylvania station, New York.

Discrimination Charged—The recommendation has resulted from a complaint filed with the commission by Wilbur E. Dow, Jr. (as reported in *Railway Age* of April 7, page 641), as a result of his being charged 90 cents (plus federal tax) on account of Hell Gate route "toll" when he remained in the parlor car seat in which he had traveled from Boston, Mass., to Pennsylvania station, New York, on a ticket covering that journey, and purchased from the conductor Pullman and railroad tickets from Pennsylvania station, New York, to Newark, N. J., to which station the train from Boston was scheduled to continue en route to Washington, D. C.

The complaint had asked for a finding that the charge is unreasonable and unjustly discriminatory and in violation of section 4 of the Interstate Commerce Act, and had asked that reparation be awarded and lawful charges be prescribed for the future. The bridge toll, which was initiated by the United States Railroad Administration during the period of government control in the World War I era, was applicable under the tariffs and commission findings, the examiner held, and was not in violation of section 4, inasmuch as the commission had granted relief from the aggregate-of-intermediate provision thereof by its fourth section order No. 7976. Under such circumstances, a reparation award was not recommended.

The Hell Gate charge is not collected from passengers traveling from Pennsylvania station, New York, to points east of and including Greenwich, Conn., or vice versa, even though they use the same trains as passengers traveling through New York between points west or south of that city and points in New England, the examiner pointed out, because passengers to or from the same New England points who arrive

at or depart from Grand Central station, New York, using routes that do not include the Hell Gate line, are not required to pay such charge. A passenger using a train from New England to Grand Central station may provide his own transportation to Pennsylvania station, there taking a train to a point south or west, and so avoid payment of the Hell Gate toll. Hell Gate route passengers who leave from or arrive at Pennsylvania station are exempted from paying the toll charge to meet this competitive situation and obtain a more even distribution of passengers between the two New York stations.

Only Through Travel Pays—"In passenger trains moving over the Hell Gate bridge route," the examiner observed, "passengers going to New York City and passengers destined to points south thereof may be sitting beside each other in the parlor car, Pullman, or any coach in the train and for such like kind and quality of service, the passengers going to New York City will be exempted from paying the bridge toll while the passengers across the aisle destined to points south of New York City will be required to pay the 90-cent bridge toll. The quality of service rendered is the same to both classes of passengers and the controlling reason for not charging a bridge toll from passengers bound to New York City is competition from rival carriers. . . . Section 2 provides that where a carrier receives from any person a greater compensation for any service rendered in the transportation of persons or property than it receives from any other person for doing him a 'like and contemporaneous service in the transportation of a like kind of traffic under substantially similar conditions, such common carrier shall be deemed guilty of unjust discrimination,' a discrimination which is prohibited and declared to be unlawful."

In addition to the examiner's finding of violation of section 2, he went on to say that the circumstances are such that there is no effective way of determining whether or not many holders of "local" tickets (that is, New England tickets to or from Pennsylvania station) are not in fact through passengers and should hold tickets "in the form and substance of through tickets," inasmuch as any passenger on a train passing through the station might step off the train and purchase a "local" ticket without question, and so avoid payment of the toll charged "through" passengers. Regulations requiring the collection of the charge from holders of "through" tickets only, the type of service offered to each class of ticket holders being the same, constitute, he said, "an unreasonable practice affecting the issuance, form, and substance of tickets in violation of section 1(6) of the Interstate Commerce Act."

Basis for Finding—As to the specific situation in which the complainant was involved, the examiner held that he "entered into a contract of carriage with the defendant carriers for transportation as a passenger from Boston to New York City, and that contract was fully performed when the train arrived at Pennsylvania station. At that time complainant sought to enter into a new contract with the Pennsylvania for carriage as a passenger from their station in New York to Newark. As a condition precedent to entering into such new contract, the carriers through their train conductor, required that the complainant pay the Hell Gate bridge toll under the old contract of carriage which had been fully performed at that time and which should have been a closed contraction."

In view of his conclusions, the examiner proposed that the commission issue an order directing the removal of the "unjust discrimination and unreasonable practice" found by him.

I. C. C. Accounting Order

All railroads except independent electric lines have been advised by the Interstate Commerce Commission to effect on January 1, 1946, a modification of their accounting procedures under the commission's Uniform System of Accounts for Steam Railroads, so that Account 546, interest on funded debt, will be maintained to show separately fixed interest not in default, interest in default, and contingent interest determined to be payable.

Convention Ban Lifted in Canada

The restrictions on conventions and other meetings when more than fifty persons use rail, bus or air transportation have been lifted by Canada's Wartime Prices and Trade Board as of November 1. The order also revokes the regulations governing the use of hotel accommodation in certain areas by persons attending conventions and other meetings and by members of organized travel groups. This restrictive order was issued last July.

Bill to Put Train Dispatching Under I. C. C. Control

Chairman Wheeler of the Senate committee on interstate commerce has introduced S. 1538 "to promote the safety of railroad employees and travelers on railroads, and to promote efficiency of railroad operation by providing for the inspection and investigation of conditions under which train-dispatching service may be performed, and for the promulgation of rules and regulations governing such conditions."

The bill would give the Interstate Commerce Commission authority, upon complaint or upon its own initiative, to investigate any railroad's dispatching facilities and methods. The commission could then order any modifications it deemed necessary; or it could prescribe new methods and facilities.

R. E. A. Wage Board Report

The emergency board appointed by President Truman on October 5 to investigate a wage and working rules dispute between the Railway Express Agency and its truck drivers and other vehicle employees represented by the International Brotherhood of Teamsters, American Federation of Labor, has made its report recommending a flat increase of 10 cents per hour, retroactive to August 20, 1945. The 7,500 employees involved work in and around New York, Chicago, Philadelphia, Pa., Cincinnati, Ohio, Cleveland, Newark, N. J., St. Louis, Mo., and San Francisco, Calif., and the recommended 10-cent increase is the amount demanded for all of them, save the New York employees who had sought a 20 per cent raise.

In the latter connection the board said that it found no evidence to justify a greater increase in New York than in the other large cities. With respect to the working-rules phase of the dispute the board recommended changes in some rules but would deny other such demands of the union. As noted in the *Railway Age* of September 1, page 383, this dispute was the subject of a previous report from a National Railway Labor Panel emergency board. That board's recommendations were unacceptable to the union, which announced a strike for October 8 but canceled the call after President Truman had appointed the present board under section 10 of the Railway Labor Act.

Court Says I. C. C. "Discretion" Extends into the Future

It is within the discretion of the Interstate Commerce Commission to give consideration to probable future needs for transportation service and facilities required to meet those needs, in issuing certificates of convenience and necessity, the Supreme Court of the United States has ruled, without dissent, in its November 5 decision in *U. S.* vs. *Detroit & Cleveland Navigation Co.*, in which the commissions's order and action were upheld and the district court was reversed.

The case grew from the commission's grant to T. J. McCarthy Steamship Co. and Automotive Trades Steamship Co. of a certificate to operate as a common carrier of automobiles by water between specified points, even though similar service had been performed by other operators (before that traffic was interrupted by the war) and those other carriers proposed to resume service when conditions permitted. The court held that the commission had doubt as to whether the former operators had or could obtain sufficient vessels in time to meet forseeable future demands for automobile transportation, and that it further found no evidence that the prior service had been inadequate.

The opinion by Justice Douglas observed that the commission is "the guardian of the public interest" and is "entrusted with a wide range of discretionary authority. Its function is not only to appraise the facts and to draw inferences from them but also to bring to bear upon the problem an expert judgment and to determine from its analysis of the total situation on which side of the controversy the public interest lies . . . . Forecasts as to the future are necessary to the decision. But neither uncertainties as to the future nor the inability or failure of existing carriers to show the sufficiency of their plans to meet future traffic demands need paralyze the commission into inaction."

The Supreme Court also ruled, in a *per curiam* decision, that the Arkansas Supreme Court erred in holding that the evidence of negligence on the part of the railroad was insufficient, in an employer's liability act proceeding, for submission to a jury. The case, listed as *Keeton* vs. *Thompson*, was a suit for damages for the death of a Missouri Pacific employee and the situation

was one proper for a jury verdict, the ruling indicated.

The Supreme Court has denied a motion of the Railway Labor Executives Association for leave to appear and participate as *amicus curiae* in the scheduled reargument of the *Elgin, Joliet & Eastern* vs. *Burley* case, in which the court threw union officers into a state of consternation with its decision (reported in *Railway Age* of June 16, page 1072) that specific authorization is required from each employee concerned if a union is to bargain for the settlement of grievances under National Railroad Adjustment Board procedures. The R. L. E. A. was allowed to file an additional brief however.

I. C. C. Adamant on Class Rate Decision

(*Continued from page 762*)

individual carriers indicate, it said, that "there is a greater need for revenue by rail carriers in the Eastern district as compared with rail carriers in the Western district or in the Southern region. The (prior) report shows also that a much larger percentage of the total traffic in the eastern district moves on class rates than in the western district or the southern region."

Turning then to the petitions of the American Trucking Associations and other trucking interests for modification of the rate adjustment order insofar as it requires reductions applicable to l.c.l. traffic, or at least by restricting the l.c.l. rates so prescribed to eliminate pick-up or delivery service (reported in *Railway Age* of July 28, page 184), the supplemental report first examined the contention that the reduction ordered in l.c.l. class rates in the South and West, and interterritorially, conflicted with the finding, in the original report, based on cost data, that l.c.l. traffic generally is not bearing its proper share of the costs of transportation. The weakness in that argument, said the commission, is that the cost data were based on 1939 operations, with the pre-war average load per merchandise car then prevailing, and that the cost data relate to all l.c.l. traffic, and not merely to the portion moving on class rates. If it is still true, under current load conditions, that l.c.l. is not bearing its proper share of costs, "it is possible that such result is due in a large measure to the maintenance of exception and commodity rates. . . . Even as to class rates on less-than-carload traffic, the record shows that in Western Trunk-Line and Southwestern territories many intrastate class rates and interstate class rates are maintained which are lower than the corresponding reduced interstate class rates required by our interim order."

Truckers' Requests Denied—Because many maladjustments would result from establishing separate scales of class rates for carload and l.c.l. traffic, and from so restricting the reduced l.c.l. rates that they would not apply where pick-up and delivery service is provided, the commission was not persuaded to accede to the truckers' requests for modifications of the order. "However," the supplemental report observed, the railroads "will be expected to give careful consideration to the rates maintained by them on l.c.l. traffic with a view to making readjustments in ratings or rates, as promptly as possible, which will insure that the rates on such traffic are on a compensatory level. Traffic moving on exceptions, column, and commodity rates, as well as pick-up and delivery services accorded l.c.l. traffic, should be so studied."

Modifications and clarifications of the original order were included in the supplemental order where questions had been raised by petitions filed by carriers, shippers, or other interests concerned in more or less special situations, some being of local and others of general importance. Among these were the following findings:

1. The interim rate adjustments which are scheduled to become effective on January 1, 1946, need not be applied to class rates on coastwise or intercoastal traffic moving to and from the North Atlantic ports (including the Virginia ports) or to specifically published coastwise or intercoastal class rates on such traffic moving through South Atlantic or Gulf ports.
2. Methods are prescribed for computing class rates from and to points in Southwestern territory which are subject to the Deming, N. M., rates as maxima, so that a 10 per cent interim reduction may be applied while retaining the Deming rates as maxima.
3. Class rates to and from points on so-called weak or short lines, when required to be reduced 10 per cent, and when subject to the minimum scale set forth in the original order, may be arrived at by a method prescribed in the supplemental order which is expected to produce rates substantially equivalent to adding the existing arbitraries, reduced by 10 per cent.
4. Certain sub-normal class rates in specific tariffs, effective where interim reductions have been ordered, have been excepted from the interim adjustments, provided that these excepted subnormal rates shall not be greater than corresponding normal class rates after the 10 per cent reduction has been made.
5. Class rates between that portion of eastern Wisconsin known as extended zone C and Official territory are to be treated as within Official territory, except rates between extended zone C and Illinois territory.
6. Class rates between Owensboro, Ky., and stations on the Louisville & Nashville in Official territory, including Cincinnati, O., and Evansville, Ind., governed by the Official classification, are exempted from the interim order.
7. Reduced class rates are not required to be applied over open but generally unused routes in instances where there are, over other routes, going commodity, column, or exception rates between the same points.
8. Requests of Kentucky interests for special adjustments affecting certain Chesapeake & Ohio lines within that state and taking Official territory rates were not acted upon, it being the commission's view that evidence was lacking to justify modifying the existing rate relationships.

The supplemental report was accompanied by a concurring-in-part expression in which Commissioner Porter repeated his previously expressed view that the record was "wholly inadequate" to support the finding that existing Official territory class rates are unreasonable. Commissioner Patterson did not participate in the disposition of the supplemental report. One full dissent, that of Commissioner Barnard, reiterating his views as expressed in the original report, held that the record in No. 28300 did not provide an adequate basis for establishing that the existing class rates which the commission had prescribed are either unreasonable or otherwise unlawful.

Would Give I. C. C. Power to Require Radio on Trains

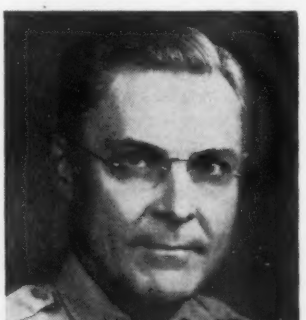
Railroads could be required by the Interstate Commerce Commission to install "telegraph, telephone, radio, inductive or other wayside and/or train communication systems" under the provisions of a bill, S. 1537, which has been introduced in the Senate by Chairman Wheeler of the committee on interstate commerce. The bill in general follows the pattern of the 1940 signal inspection act.

In addition to the authority it would give the commission to require installation of communication systems, it would prohibit the abandonment of any existing communication facilities without commission approval. Also, it would require each road to file with the commission its rules, standards, and instructions for the installation, inspection, maintenance, repair, and operation of train communication facilities. Such rules and instructions, with modifications required by the commission, would become obligatory on the carrier.

Brigadier General McIntyre Leaves Army Service

Brigadier General Andrew F. McIntyre, deputy director of operations and chief of the Rail Division, Office of Chief of Transportation, retired from Army service last week with a distinguished service medal presented to him by Major General Charles P. Gross, chief of transportation. General McIntyre, who will return to the service of the Pennsylvania, was that road's superintendent of passenger transportation at Philadelphia, Pa., when he entered the Army in January, 1942.

The citation for his distinguished service medal read in part as follows: "He played an important role in the movement of personnel and supplies by rail in the Zone of



Brig. Gen. Andrew F. McIntyre

the Interior and was responsible for the organization and establishment of basic policies of the Military Railway Service. During the period of hostilities, eleven million tons of ammunition and explosives were moved to ports of embarkation and transshipped under his supervision without any mishap of consequence. The success of the Military Railway Service in theaters of operations was likewise attributable in large measure to his wise counsel. General McIntyre's sound judgment, able leadership and outstanding knowledge of railroad operation were essential factors in the fulfillment of the mission of the Transportation Corps."

General McIntyre was born April 4, 1892, and entered railroad service with the Pennsylvania in 1909. He has held various operating positions including a World War I assignment with the road's special troop movement division, which supervised the operation of troop and equipment trains from the Niagara frontier and northern New York to points east and south. Entering service in World War II as a lieu-

tenant colonel in the Reserve Corps of Engineers, his first assignment was to the War Department General Staff in the transportation branch of supply. He became chief of the Movements Division, Transportation Service, in May, 1942, and deputy director of operations of the newly-created Transportation Corps in January, 1943. In November of that same year, General McIntyre became chief of the Rail Division, retaining also his duties as deputy director of operations.

Some P. R. R. Shopmen Choose C. I. O. Union

The United Railroad Workers of America, Congress of Industrial Organizations, has supplanted the Brotherhood of Railroad Shop Crafts of America, Pennsylvania System, as the Railway Labor Act representative of P. R. R. boilermakers, molders, power house employees and railway shop laborers, according to results of a recent election which has been certified by the National Mediation Board. P.R.R. machinists, blacksmiths, sheet metal workers, electrical workers and carmen were also involved in the election, but these groups voted to retain the brotherhood as their representative.

Two other recent C. I. O. victories—both over American Federation of Labor unions—were won by its United Transport Service Employees of America in Baltimore & Ohio and Savannah Union Station elections. On the B. & O. the United supplanted the Dining Car Employees Union, Hotel and Restaurant Employees International Alliance, as representative of dining car waiters-in-charge, cooks and waiters; while in the Savannah election it defeated the challenging Brotherhood of Railway Clerks and retained its right to represent clerical, office, station and storehouse employees.

On the Columbia & Cowlitz and the Jacksonville Terminal, the Brotherhood of Locomotive Firemen & Enginemen has supplanted the Brotherhood of Locomotive Engineers as representative of locomotive engineers, The Brotherhood of Railroad Trainmen has won the Lake Superior & Ishpeming road conductors from the Order of Railway Conductors, and it has also been chosen by the previously unrepresented station masters and switchtenders employed by the St. Joseph Union Depot.

Bangor & Aroostook electrical workers, carmen, power house employees and railway shop laborers, previously represented by a local committee, have chosen unions operating through the A. F. of L.'s Railway Employees Department. Agents, telegraphers and levermen employed by the Detroit Toledo & Ironton and Atchison, Topeka & Santa Fe boat dispatchers have chosen, respectively, the Order of Railroad Telegraphers and the American Train Dispatchers Association. Neither was previously represented.

O. D. T. Moves to Overcome "Let-Down" in Car Handling

Measures to overcome an "evident post-war let-down in the expeditious handling of freight cars" were announced this week by the Office of Defense Transportation, in an effort to relieve the "continuing serious box car shortage in the grain belt." As noted elsewhere in this issue, C. H. Buford, vice-president of the Association of American Railroads, and W. C. Kendall, chairman of the Car Service Division, have urged railroad operating officers to give their attention to this same situation.

The O. D. T. statement said that the movement of grain to elevators and mills, and for export, is being delayed "in spite of the fact that in the first 40 weeks of 1945 more grain and grain products were hauled than during any past corresponding period." It quoted Director J. Monroe Johnson as saying that "railroads, shippers and government transportation agencies must act together quickly and effectively."

As a means to effective action, it went on, service agents of the Interstate Commerce Commission are making a survey of shippers and rail carriers beginning in New England and continuing westward to the Ohio and Mississippi rivers. The agents will determine the "precise extent to which railroads and shippers are at this time failing to make the requisite prompt movement, loading and unloading of freight cars."

If it is found that shippers or receivers do not load or unload cars within a reasonable time and that cars are not moved in accordance with the present loading requirements, "appropriate measures will be taken to insure promptitude." This applies to stock cars and refrigerator cars as well as to box cars, O. D. T. said.

The statement also revealed that the A. A. R. has acted "to help counteract the serious shortage of box cars in the West—particularly in the Northwest wheat belt and the sorghum grain area in the Southwest." It has issued quota orders to eastern and southeastern roads to return during November to western roads loaded or empty cars of western ownership at the rate of 2,500 a week until a total of 10,000 is reached.

Emergency Board Appointed

Chairman H. H. Schwartz of the National Railway Labor Panel has appointed an emergency board from the panel to investigate disputes between the Pacific Electric and the Brotherhood of Railroad Trainmen. The disputes involve jurisdictional issues, the B. of R. T. having requested appointment of the board to determine what organization has the right to represent certain employees.

Recommend Uniform Accounts in Canada

Recommendation to the Canadian Parliament of the adoption by the Canadian Pacific and the Canadian National Railways of uniform accounting methods was made at Ottawa last week by A. O. Matthews, representing George A. Touche & Co., official auditors for the Canadian National System. That part of the auditors' report dealing with uniform accounting says in part:

"Having in mind the conflicting elements in the railway situation in Canada and the widespread publicity given to the matter from time to time in the decade preceding the present war, we are persuaded that the uniform presentation of the published accounts of the two major Canadian railways will be of far-reaching importance in the post-war years to the government and people of Canada as the shareholders of the National System. The published accounts of the two railways have not been subject to proper comparison because of:

(*a*) Difference in the accounting bases as between Operating, Income, Surplus and Reserve Accounts and as between the 'Consolidated' and 'Parent Company' presentation, and

(*b*) Disparity in traffic density over the peace-time years, due largely to the difference in purposes of original construction and extension of a considerable portion of the two properties.

"We therefore recommend to Parliament the establishment, as early as practicable in the post-war period, of uniform accounting regulations for Canadian railways under the statutory authority of the Dominion.

"The recommendation is primarily that, after providing for any special requirements

Why Keep the Bomb Secret?

"Three nations in this world *could* use the atomic bomb, the United States, Great Britain and Russia. For a long period Germany and Japan will not be able to do so. The small nations would not do it if they could. The remainder are too backward to construct it.

"The United States will not use it on Great Britain or Russia. Great Britain certainly will not use it on the United States. Now, if the relations between the three were on the same basis as the relations between the United States and Great Britain, the position of a writer who favors turning over the bomb secret to the United Nations would be sound. That is not the case.

"One does not have to become choleric about Russia, as some do, to recognize the plain fact that Russia is ruled by force and fear and those who rule by force and fear are themselves the victims of fear. Consequently they are suspicious of everybody within and without the borders of Russia. Their suspicions and uncertainties go to the extreme length of keeping their people out of contact with people who live and think differently than they. Even when this country and Britain were furnishing them the tools to fight Germany, the Russians would not admit military observers and they would not share their own military secrets, if they possessed any.

"If the gift of billions in goods and the sacrifice of lives in a war in which the United States was not forced to participate does not allay the suspicions of the Russians, will the gift of the atomic secret do so? Will the Russians then allow observers in their country to see how that secret is being used? It is a chance that should not be taken."

—*From the Wall Street Journal*

inherent in the ancillary operations of Canadian railways, these regulations governing the published accounts should follow the broad bases of the Interstate Commerce Commission classification for the United States railways in respect of the accounting allocations to Total Operating Revenues, Total Operating Expenses (suggested to include Depreciation of all Equipment and the larger units only of Depreciable Fixed Properties), Net Income, Surplus and the General Balance Sheet Accounts including specific provisions covering the utilization of Reserves. While the adoption of the broad bases of the Interstate Commerce Commission classification is recommended because of international operations, it is in regard to the voluminous details involved in some of the orders affecting the railways of the United States that we see the desirability of the proposed Canadian regulations different in policy by simplifying the methods of accounting distribution at the source and by the avoidance of a certain amount of clerical expense."

Materials and Prices

The following is a digest of orders and notices that have been issued by the War Production Board and the Office of Price Administration since October 13, and which are of interest to railways:

Lumber—Lumber has been placed under inventory control by the W. P. B. by a revision of Priorities Regulation No. 32. The inventory limitations apply to all persons who use lumber for production, operating supplies, maintenance or repair or for construction, both for his own account and for the account of another, W. P. B. said. Specific limitations on distributors' lumber inventories, which are now subject to practicable minimum working levels, are also under consideration, it was said.

The revision is part of a six-point program to speed expansion of the construction industry recently announced by Director John W. Snyder of the Office of War Mobilization and Reconversion, which required W. P. B. to "strengthen inventory controls to prevent hoarding of building materials so that building will not be delayed by artificially created shortages."

With lumber added to Table 1 of PR 32, specific inventory limitations now apply to receipts by users of the following building materials: lumber, steel, cast iron soil pipe, and copper wire and brass mill products. Receipts of all other building materials are limited by the regulation to practicable minimum working inventory levels.

W. P. B. called attention to restrictions on ordering more than needed as described in paragraph (d) of the regulation and stressed the fact that these provisions apply to all persons whether buying for use or for resale. The regulation also prevents placing of orders with different suppliers which aggregate more than the buyer is permitted to receive even though he intends to cancel one or more of the orders before delivery. Particular emphasis will be placed on this restriction by W. P. B.'s Compliance Division in making spot checks, since multiple ordering or preemptive buying would interfere with an orderly expansion of the construction industry.

The new restrictions on lumber, affecting receipts of seasoned, green, rough, surfaced and worked to pattern lumber of all kinds, sizes and grades, limit inventories to 60 days requirements or a practicable minimum, whichever is less. They apply to all users including construction and transportation industries.

W. P. B. officials explained that lumber as understood in the trade, is the products of the saw and planing mill, not further manufactured than by sawing, resawing, and passing lengthwise through a standard planing machine, cross cutting to length and working. Lumber of thickness not in excess of ¼ in. to be used for veneering is classified as veneer.

The 60-day limitation does not apply to green lumber which must be seasoned by the user before it is usable for the purpose for which it is purchased, it was pointed out, but such receipts are subject to the practicable minimum inventory restrictions of the regulation. However, such lumber, when sufficiently seasoned for use, must be counted in determining whether or not the person is eligible to accept any further deliveries of lumber in usable condition under the limitations now imposed.

Priorities Change—In clarifying the effect of an amendment to priorities regulation No. 3, issued October 22, W. P. B. emphasized that removal of ten products, ranging from alarm clocks to pig iron, from List A does not affect the normal buyer-customer relationship existing at present, and does not mean that a preference rating is now required.

Prices

Millwork—Contract sales of special and made-to-order millwork may not be made at prices higher than the seller charged in March 1942, according to RMPR 293, effective November 5. There has been some question on this point, the O. P. A. said, and some sellers at retail have been obtaining higher than their March 1942 prices by computing ceilings under the procedure for pricing stock millwork other than special or made-to-order millwork.

Supply Trade

Carl J. Dinic, whose appointment as executive assistant to the president of the **American Locomotive Company** was

Carl J. Dinic

reported in the *Railway Age* of November 3, became associated with the company in July, 1943, as assistant to the president. Prior to that he was with the United States Steel Corporation, Pittsburgh, Pa., and with Eastern Gas & Fuel Associates, Boston, Mass.

Robert G. Allen has been appointed general sales manager of the **Baldwin Locomotive Works.** Mr. Allen was educated at Harvard University. He joined the Walworth Company in 1925 and was division sales manager from 1929 until 1936. He served two terms as a representative of Pennsylvania in the United States Congress from 1936 to 1940. He was elected president of the Duff-Norton Manufacturing Company in 1940, which position he held until July, 1942, at which time he was granted a leave of absence to accept a commission as a major in the Army. He served as chief of the tank branch and later as executive officer of the Philadelphia, Pa., ordnance district. He was promoted to lieutenant colonel in February, 1943, and a few months later transferred to field service and overseas where he served as a battalion commander and a group commander. He was returned to the United States in No-

Robert G. Allen

vember, 1944, and placed on the inactive list January, 1945. He joined the Baldwin organization as general manager of the Baldwin Southwark division in March, 1945, which position he held until his recent appointment.

Colonel Louis F. Stuebe, who has been serving with the army, has rejoined the Chicago sales engineering staff of the Hyatt Bearings division of the **General Motors Corporation.** He will specialize in Hyatt railroad applications. Mr. Stuebe has been associated with Hyatt as a sales engineer since June, 1925.

R. L. Hillpot has been appointed manager of the Southwestern district of the **Safety Car Heating & Lighting Co.** with headquarters in Philadelphia, Pa. Mr. Hillpot has been associated with the Safety Car Company since 1915, excepting for a

R. L. Hillpot

short period of service in the maintenance of way department of the Pennsylvania, and in the Navy during the first world war. From 1939 until assuming his present

duties, he has served as representative in the southeastern district.

J. P. Lyons has retired as Ohio district sales representative for the **Elwell-Parker Electric Company,** Cleveland, Ohio.

Ralph E. Middleton, a vice-president of the **Aireon Manufacturing Corporation,** has been appointed general manager of the corporation's hydraulic division at Burbank, Calif. Mr. Middleton had been chief engineer there since 1941.

George S. Forman has been appointed direct factory representative in Latin America for the line of power industrial trucks, tractors and cranes of the Baker Industrial Truck division of the **Baker-Raulang Company,** Cleveland, Ohio. During the past 17 years Mr. Forman has traveled in Latin America for Colt's Patent Fire Arms Manufacturing Company.

The Southwark division of the **Baldwin Locomotive Works** has placed field sales engineers in five of the company's branch offices in order to give better service to users of the SR-4 strain gage. The men and their offices are **Richard Hannon,** Boston, Mass.; **Joseph Farley,** Chicago; **Robert Cleeland,** New York; **Glenn Rowell,** Philadelphia, Pa.; and **Stanley Zansitis,** Detroit, Mich.

G. V. Woody has been appointed manager of the **Allis-Chalmers** basic industries department to succeed **R. C. Newhouse.** Mr. Newhouse, who is retiring, will be retained as a consulting engineer. Mr. Woody has been manager of the Allis-Chalmers district office at Pittsburgh, Pa., since 1934, excepting for a period of service as administrator of the company's priorities management organization in Milwaukee, Wis., in 1941 and 1942.

Kenneth D. Halleck, Washington sales representative for the past two years for the **Aireon Manufacturing Corporation** and, before that, representative for the company on its army contracts with the Signal Corps procurement district in Philadelphia, Pa., and Dayton, Ohio, has been elected a director of the company. Mr. Halleck will transfer to the company's headquarters in Kansas City, Mo., as administrative assistant to the executive vice-president.

Incorporation papers have been filed for a new concern, the **Cincinnati Lathe & Tool Co.,** which has acquired the land, buildings, machinery, designs, inventory, unfilled orders, and trade name of the Cincinnati Lathe & Tool Company, Oakley, Ohio. The new company is a subsidiary of the Cincinnati Milling Machine Company, but will be entirely independent in operation. The Cincinnati Lathe & Tool Company has discontinued manufacturing operations because of the retirement of its president, **W. C. Heindel.** The new officers are **Millard Romaine,** president, and **E. W. Mueller,** secretary-treasurer.

OBITUARY

J. J. Roberts, former president of the Roberts & Schaefer Co., Chicago, who retired in 1941 as treasurer of that company, died suddenly at his home in Miami, Fla., on November 3.

Equipment and Supplies

LOCOMOTIVES

The PENNSYLVANIA has ordered 10 Diesel-electric passenger locomotives, of 6,000-hp. each, from the Electro-Motive Division of the General Motors Corporation. Each locomotive will consist of four 1,500-hp. units coupled together with control cabs at both ends.

PASSENGER CARS

The NEW YORK CENTRAL has asked for bids on November 17 for equipment for 14 passenger trains. A total of 214 passenger-train cars are involved, including sleepers.

The CHICAGO, ROCK ISLAND & PACIFIC has received authorization to purchase 53 passenger cars and 250 automobile freight cars at cost in excess of $5,600,000. The passenger equipment includes 16 day-chair cars, 11 chair-night coaches, 2 parlor cars, 3 parlor-observation cars, 5 sleeper-room cars, 4 dining cars, 5 baggage cars, 3 room-lounge cars and 4 cars of a type not yet specified.

The BOSTON & MAINE and the MAINE CENTRAL have ordered 24 lightweight stainless steel passenger-train cars from the Pullman-Standard Car Manufacturing Company at a cost of approximately $2,000,000. Each road has ordered eight deluxe coaches, two restaurant-lounge cars and two coach-smoking-lounge-baggage cars. The new equipment, which is designed for use in solid trains on the Boston, Mass.—Portland and Bangor, Me., runs, is expected to be ready for service late next year.

SIGNALING

The NEW YORK, NEW HAVEN & HARTFORD has placed an order with the Union Switch & Signal Co. for materials to re-signal 10.5 miles of the four-track electrified main line between Rye, N. Y., and Mt. Vernon. This order includes 67 suspended Style H-5 searchlight bridge signals, coded a-c. track circuit equipment, with associated apparatus for control of automatic signals with either-direction running on the two middle tracks between Rye and New Rochelle. The installation will be handled by the railroad company's forces.

The WABASH has placed an order with the Union Switch & Signal Co. for the signal material to install centralized traffic control between Huntsville, Mo., and Salisbury, covering 14 miles of single track connecting two sections of double track, with the control machine at Moberly. The order includes coding equipment, Style H-5 high and dwarf searchlight signals, Style M-22A dual control electric switch movements, Style T-21 hand-operated switch layouts, coded track circuit equipment, relays, and housings. The installation will be handled by the railroad company's forces.

Financial

ATCHISON, TOPEKA & SANTA FE-CHICAGO, ROCK ISLAND & PACIFIC.—*Acquisition.*—Division 4 of the Interstate Commerce Commission has authorized these two roads to acquire joint control of the Oklahoma City Junction by purchase of its stock for $250,000 and by lease, and to execute a contract whereby the Santa Fe will operate the leased property, consisting of 1.7 miles of line serving the Oklahoma City, Okla., stockyards.

CENTRAL OF NEW JERSEY.—*Reorganization Date.*—The United States district court has signed an order giving company until April 30, 1946, to complete its reorganization plan. This date was reported incorrectly as being April 13, 1946, in the *Railway Age* of November 3.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC. — *Reorganization.* — The committee handling this road's reorganization proceedings has applied to the Interstate Commerce Commission for authority to consummate the approved plan by issuing securities, transferring the debtor's property, and negotiating the Chicago, Terre Haute & Southeastern lease.

KANSAS CITY SOUTHERN.—*Refunding.*—In a proposed report, Examiner W. P. Starr has recommended that Division 4 of the Interstate Commerce Commission should deny this company's application for authority to issue $40,000,000 of series A 50-year first mortgage 4 per cent bonds and $6,000,000 of unsecured promissory notes, with the proceeds of which it proposed to redeem $26,950,000 of first mortgage 3 per cent bonds due in 1950 (for which 107 would be offered, this issue being non-callable); $6,944,000 of Texarkana & Fort Smith series A first mortgage 5½ per cent bonds, callable at 107½; $1,114,000 of secured serial 3 per cent notes, callable at par; and $7,700,000 of 2½ per cent promissory notes, on which the maturity would be anticipated. In addition, the road's treasury would be reimbursed for its recent redemption of $3,000,000 of Kansas City & Grandview first mortgage 4½ per cent bonds. Substantially all outstanding K. C. S. indebtedness thus would be affected by the operation. Authority was sought at the same time to pledge under the new first mortgage Louisiana & Arkansas stock held by the K. C. S., that is, 60,000 shares of cumulative prior preferred, 40,000 shares of preferred, and 160,000 shares of common.

Invitations for bids on the new issues, the examiner reported, resulted in an offer of Kuhn Loeb & Company and others of 98¼ for the first mortgage 4's and a bid of par for the notes at 2⅜ per cent interest from the New York Trust Company and others, each being the only bid received. The transaction would result in a net cost, in excess of the interest saving to maturity of the old bonds, of about $3,143,000. Its advantages, as set forth in the application, include extension of the large 1950 maturities which the company now faces, a reduction of annual interest charges, taking advantage of present favorable market conditions, and completion of a refinancing

program which would leave it with $46,285,000 of mortgage debt as compared to $66,843,000 on December 1, 1939.

"The objectives of this program are desirable," said the examiner. "Whether market conditions are more favorable now to conclude this refunding program than they will be in 1950, it is impossible to ascertain. However, in the present proposals, only one bid for the bonds was received in response to 305 invitations. . . . This response would seem to indicate that upon considering the plan the market was not especially favorable for refunding at this time. The benefits to be derived from the overall program are obvious, but the facts presented do not show the urgency for concluding it, at the heavy cost involved, prior to the maturity of the outstanding bonds." In view of all the circumstances, he concluded, "it would be difficult for the commission to make the findings required by the statute, especially that the proposed issue is necessary or appropriate for the objects contemplated."

LEHIGH & NEW ENGLAND.—*Refunding.*—Division 4 of the Interstate Commerce Commission has authorized this company to issue $4,000,000 of series B first mortgage 3 per cent bonds, due in 1975, the proceeds of which, with other funds, including $1,000,000 advanced by the Lehigh Coal & Navigation Company, are to be employed in the redemption at 105 of $5,011,000 of series A general mortgage 4 per cent bonds due in 1965. The new issue has been sold at 99.5199 to Kidder, Peabody & Company and others. A nt reduction in interest charges of $1,229,669 is anticipated.

MERIDIAN & BIGBEE RIVER.—*Extension of Debt Maturity.*—This road has applied to the Interstate Commerce Commission for authority to extend to 1950 the maturity date of $900,000 of trustee's certificates held by the Reconstruction Finance Corporation.

SOUTHERN PACIFIC.—*Acquisition.*—Division 4 of the Interstate Commerce Commission has approved this company's acquisition of the properties of the South San Francisco Belt, already operated by it and controlled through ownership of all stock. The subsidiary company is to be dissolved, thus simplifying the system capital structure.

SOUTHERN PACIFIC.—*Extension of Bond Maturities.*—Division 4 of the Interstate Commerce Commission has approved the extension to 1974 of the maturity date of three issues of bonds in the Southern Pacific system, all of which are owned by the Southern Pacific Company and guaranteed by the Central Pacific. The securities involved are $3,000,000 of Central California first mortgage 6's, $2,500,000 of Sacramento Southern first mortgage 6's, and $949,000 of Chico & Northern first mortgage 4's.

Average Prices Stocks and Bonds

	Nov. 7	Last week	Last year
Average price of 20 representative railway stocks	62.03	61.68	42.37
Average price of 20 representative railway bonds	99.77	99.13	90.78

Dividends Declared

Catawissa.—1 & 2 preferred, semi-annually, 75¢, payable November 23 to holders of record November 5.

Chesapeake & Ohio.—Quarterly, 75¢, payable January 2 to holders of record December 7.

Cleveland & Pittsburgh.—4%, special, quarterly, 50¢, and 7% guaranteed, quarterly, 87½¢, both payable December 1 to holders of record November 10.

Delaware & Hudson.—Quarterly, $1, payable December 20 to holders of record November 28.

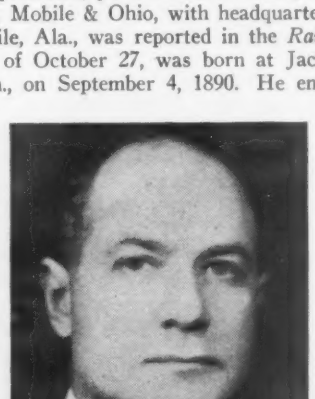
Railway Officers

EXECUTIVE

Carey Hosmer, superintendent of the northwestern district of the Missouri-Kansas-Texas at Wichita Falls, Tex., has been promoted to assistant to the president, with headquarters at St. Louis, Mo.

Harry A. Hudwalker, district superintendent of the Pullman Company at Louisville, Ky., has been promoted to assistant to the assistant vice-president, with headquarters at Chicago.

Hermon E. Warren, whose election to vice-president, purchases and stores, of the Gulf, Mobile & Ohio, with headquarters at Mobile, Ala., was reported in the *Railway Age* of October 27, was born at Jackson, Tenn., on September 4, 1890. He entered



Hermon E. Warren

railroad service as a messenger in the dining car department of the Mobile & Ohio (now the Gulf, Mobile & Ohio) in July, 1903, at Jackson, subsequently holding various minor positions until 1913, when he was promoted to superintendent of dining cars, with the same headquarters. In August, 1917, Mr. Warren became a special representative of the general superintendent at Mobile, and three years later he was promoted to assistant to the general manager, with the same headquarters. A short time later he was advanced to assistant to the president, also at Mobile, and on January 1, 1921, he was promoted to manager of purchases and stores, which position he held until his new appointment.

FINANCIAL, LEGAL AND ACCOUNTING

The following promotions in the legal department of the Great Northern at St. Paul, Minn., have been announced: **R. J. Hagman,** assistant general counsel, to general solicitor; **J. H. Mulally,** general attorney, to assistant general counsel; **Hallan Huffman,** general attorney, to assistant general counsel; **L. E. Torinus, Jr.,** attorney, to assistant general solicitor; **R. F. Berg,** attorney, to general attorney. The following promotions have taken place at the railroad's law office at Seattle, Wash.; **A. J. Clynch,** commerce attorney, to assistant western counsel, and **Clark A. Eckart,** attorney, to assistant western counsel.

PURCHASES AND STORES

K. P. Chinn, assistant purchasing agent of the Texas & New Orleans (part of the Southern Pacific System), at New Orleans, La., has been promoted to purchasing agent, with the same headquarters, succeeding **J. L. Cowan,** who has retired after more than 50 years of service. **E. V. Purdy** has been appointed assistant to the purchasing agent, with headquarters at New Orleans. The position of assistant purchasing agent has been abolished.

Mr. Cowan was born at Franklin, La., on October 25, 1875, and entered railway service in 1895 in the accounting department of the San Antonio & Arkansas Pass (a subsidiary of the Southern Pacific). In 1900 he became stationery buyer for the same road and in 1903 was appointed chief clerk to the purchasing agent. Three years later he was promoted to purchasing agent, with headquarters at San Antonio, Tex., where he remained until 1925, when the S. A. & A. P. was made a part of the Southern Pacific, and he was appointed assistant purchasing agent of the latter company, with headquarters at Houston, Tex. In February, 1930, he was advanced to the position he held at the time of his retirement.

OPERATING

John L. Hughes, superintendent of the New Jersey division of Railway Express, retired on November 1 after 54 years of service. He is succeeded by **Roy L. Kinsman,** expressman at Buffalo, N. Y.

J. R. Padden has been appointed trainmaster of the Baltimore & Ohio with headquarters at Massillon, Ohio, to succeed **W. C. Deegan,** whose recent death is reported elsewhere in these columns.

Charles A. Hunt, agent of the Pennsylvania at Pittsburgh, Pa., has been promoted to superintendent of stations and transfers, central region, succeeding **Frank R. Hoon,** whose death was reported in the October 6 issue of *Railway Age.*

B. P. Smith, engine foreman of the Illinois Central at Chicago, has been promoted to trainmaster, with the same headquarters, succeeding **J. T. Cleary,** whose death on October 18 was reported in the *Railway Age* of October 27.

Charles D. Moss, whose appointment as general manager of the Clinchfield at Erwin, Tenn., succeeding **L. H. Phetteplace,** retired, was announced in the November issue of *Railway Age,* has been in railway service for 47 years. His early

railroad experience was with the Southern, the Seaboard Air Line, and the Norfolk & Western. He joined the Clinchfield in 1909 as train dispatcher and since that time has held positions as chief dispatcher, trainmaster, superintendent, and general superintendent.

James P. Rogers, agent of the Pullman Company at Nashville, Tenn., has been advanced to district superintendent at Louisville, Ky., succeeding **Harry A. Hudwalker,** whose promotion to assistant to the assistant vice-president at Chicago is reported elsewhere in these columns.

S. F. Philpot, assistant division superintendent of the Chicago, Milwaukee, St. Paul & Pacific at Minneapolis, Minn., has been transferred to the La Crosse & River division, with headquarters at Wausau, Wis., succeeding **G. F. Haucer,** whose death on October 17 is reported elsewhere in these columns.

William G. Doherty, whose appointment as superintendent of the Belleville division of the Canadian National was announced in the October 20 issue of *Railway Age,* was born in Lynden, Ont., and entered railroading there in 1904 as an

William G. Doherty

operator. He subsequently served in the same capacity at London, Ont., later becoming dispatcher, night chief dispatcher, and chief dispatcher, London division. He was appointed assistant superintendent at Hamilton, Ont., in 1929, then served in similar capacities at Montreal, Que., and Ottawa, Ont. In 1943, he became superintendent of transportation for the southern Ontario district, and transferred in 1944 to Fort Erie, Ont., as superintendent of the Black Rock Terminals. His appointment as superintendent of the Belleville division with headquarters at Belleville, Ont., became effective October 1.

Oliver Wenzell Duff, whose retirement as superintendent of the Belleville division of the Canadian National was announced in the October 20 issue of *Railway Age,* was born at Canora, Ont., in 1884, and began his railway career as an operator for the Canadian National at Lawrence, Ont., later serving in the same capacity at Cayuga, Ont., Jarvis, and St. Thomas. In 1908 he was appointed dispatcher and in 1917, chief dispatcher, St. Thomas division (Ont.). Mr. Duff was appointed assistant superintendent there in 1923, becoming superintendent in 1934. He was transferred to the Belleville division in 1938. His retirement was announced by the company on October 1.

Louis H. Phetteplace, whose retirement as general manager of the Clinchfield at Erwin, Tenn., was announced in the November 3 issue of *Railway Age,* was born in Smithsburg, Md., on April 30, 1871,

Louis H. Phetteplace

and entered railroading in 1888 as a messenger with the Western Maryland, serving in various capacities until 1890, when he joined the Norfolk & Western as a telegraph operator at Bluefield, W. Va. He became a dispatcher in 1891, chief dispatcher in 1898, assistant trainmaster in 1901, and trainmaster in 1905. Mr. Phetteplace joined the Carolina, Clinchfield & Ohio (now the Clinchfield) in 1908 as superintendent. He was advanced to general superintendent in 1911 and to general manager in 1913.

John M. Budd, whose promotion to assistant general manager, lines East of Williston, N. D., of the Great Northern, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of November 3, was born at Des Moines, Iowa, in 1907, and received his higher education at Yale University. He entered railroad service in 1930 as an assistant electrical engineer at St. Paul. From 1933 to 1940 he served as assistant trainmaster and trainmaster of the Willmar and Spokane divisions, being promoted to superintendent of the Klamath division in the latter year. In 1942 Mr. Budd was transferred to the Kalispell division, and on November 15 of the same year he was granted a leave of absence to serve with the armed forces. He returned to the Great Northern on October 31 and was advanced to his present position.

Lt. Col. Ernest E. Foulks, whose promotion to superintendent of transportation of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, was reported in the *Railway Age* of November 3, was born at Alpine, Tex., on August 22, 1903, and entered railway service on June 10, 1920, as a clerk on the Rio Grande division of the Santa Fe, later serving also as a telegraph operator and cashier. In 1922 he was appointed a stenographer in the superintendent's office at San Bernardino, Cal., and in 1923 he was promoted to secretary to the superintendent at Winslow, Ariz. From 1926 to 1934, Mr. Foulks served as operator, dispatcher, night chief dispatcher and chief dispatcher at Winslow and on June 4, 1934, he was appointed transportation inspector at Los Angeles, Cal. On July 10, 1935, he was promoted to trainmaster at Winslow and on January 1, 1940, he was advanced to assistant superintendent at Phoenix, Ariz. Mr. Foulks was transferred to Winslow on August 10, 1941, and in January, 1942, he was promoted to superintendent of the Albuquerque division, with headquarters at Winslow, the position he held until he entered the service of the armed forces in 1942.

TRAFFIC

Joe B. Norman, whose appointment as assistant freight traffic manager of the Central of Georgia at Birmingham, Ala., was announced in the September 29 issue of *Railway Age,* was born on September 26, 1900, in Birmingham, Ala., and entered railway service in 1916 with the Frisco

Joe B. Norman

Lines. In 1924 he joined the Central of Georgia as a joint freight traffic officer. In the following year, he went with the Illinois Central as city freight agent at Birmingham. Mr. Norman rejoined the Central of Georgia in 1926 as a freight service agent at Birmingham. He was advanced to commercial agent there in 1937. His recent promotion to assistant freight traffic manager became effective September 1.

Fred E. Clarke has been appointed district passenger agent of the Alton with headquarters at Little Rock, Ark.

E. L. Williams, general claim agent of the Baltimore & Ohio with headquarters at Cincinnati, Ohio, has retired after more than 50 years of railroad service.

M. E. Ross, assistant general coal freight agent of the Chesapeake & Ohio at Toledo, Ohio, has been promoted to general coal traffic agent, with the same headquarters. **P. D. Wilson, V. M. Darnall,** and

R. W. Tomb, have been appointed coal traffic agents, all with headquarters at Chicago. **A. D. Florance, A. F. Bryan,** and **R. C. Jones** have been appointed coal traffic agents, with headquarters respectively at Milwaukee, Wis., Grand Rapids, Mich., and Detroit.

Henry Chandler White, whose appointment as general freight agent of the Central of Georgia at Savannah, Ga., was announced in the October 27 issue of *Railway Age*, was born on September 4, 1893, at Thomaston, Ga. Mr. White entered railroad service there in 1914 as an agent for the Central of Georgia. After a period of service in the United States Army, 1918-1919, he returned to this post, from which he was advanced to chief clerk to assistant general freight agent at Macon, Ga. He was appointed agent at Americus, Ga., in 1923, and Florida freight agent at Jacksonville, Fla., in 1925. Mr. White became Florida freight and passenger agent with the same headquarters in 1935, then was promoted to division freight agent at Macon, in 1939, the position he relinquished to become general freight agent.

Henry Chandler White

J. E. Gardner, district freight agent of the Illinois Central at Miami, Fla., has been promoted to general agent, coal traffic department, with headquarters at Chicago, a newly-created position.

D. O. Rasmussen, traveling freight agent of the New York Central at Omaha, Neb., has been promoted to general agent with the same headquarters, to succeed **R. J. Ross,** whose death on September 8 is reported elsewhere in these columns.

Franklin A. Markley, division freight agent of the Baltimore & Ohio at Pittsburgh, Pa., retired on October 31 after 49 years' service. He is succeeded by **George E. Dove,** district freight representative at Jacksonville, Fla.

W. G. Shisler has been appointed general agent of the Chicago, Burlington & Quincy at Milwaukee, Wis., succeeding **E. G. Waterman,** who has been transferred to Cincinnati, Ohio. **E. L. Simmons** has been appointed general agent at Tulsa, Okla., succeeding **A. L. Moore,** who has retired after 35 years of service. **C. O. Warrell** and **J. C. Boyer** have been appointed general agents at Memphis, Tenn., and Spokane, Wash., respectively.

H. L. Willard, coal freight agent of the New York Central at Detroit, Mich., has been promoted to general coal freight agent with headquarters at Chicago. **G. R. Peterson** has been appointed coal freight agent at Detroit, to succeed Mr. Willard.

William A. Benjamin, traveling agent of the Chicago & North Western at San Francisco, Cal., has been appointed district passenger agent, with the same headquarters, succeeding **Frank M. Carroll,** deceased.

H. D. Wilkerson, general freight agent of the Norfolk & Western at Columbus, Ohio, has been promoted to assistant freight traffic manager with the same headquarters. The position of general freight agent at Columbus has been abolished.

Frank M. Tuttle, whose appointment as assistant freight traffic manager of the Central of Georgia at Atlanta, Ga., was announced in the September 29 issue of *Railway Age*, was born at Shorter, Ala., on December 5, 1893, and entered railroad service in July, 1908, as a messenger for the Central of Georgia at Montgomery, Ala. He worked in various local offices until 1913, when he joined the Georgia & Florida as soliciting agent and traveling freight agent. In 1915 he returned to the Central of Georgia as soliciting agent at Montgomery. He served as a first lieutenant during World War I. Upon his return to civilian status in November, 1919, he became service agent for the Central of Georgia at Macon, Ga., and was promoted to commercial agent there in 1920. In October, 1923, Mr. Tuttle transferred to Birmingham, Ala., remaining there until January, 1937, when he was advanced to division freight agent at Macon, Ga. In March, 1939, he went to Atlanta, Ga., as division freight agent in charge of the traffic office, the post he maintained until his advancement on September 1 to assistant freight traffic manager.

Frank M. Tuttle

The Norfolk & Western has announced the following promotions: **E. M. Dudley** and **S. S. Hosp,** general freight agents at Roanoke, Va., have become assistant freight traffic managers. **R. F. Dickson,** general agent at Pittsburgh, Pa., has been advanced to general freight agent at Roanoke, Va., succeeding **F. W. Jones,** retired, while **W. E. Burnett,** who held the position of division freight agent at Roanoke, becomes general freight agent. **C. W. Nickless,** general agent at Washington, D. C., has been transferred to Pittsburgh, Pa., and **J. B. Ragland, Jr.,** traveling passenger agent, succeeds Mr. Nickless as general agent at Washington. The positions formerly held by Messrs. Dudley, Hosp, and Burnett have been abolished.

Ross O. Hambly, general agent of the Duluth, South Shore & Atlantic and the Mineral Range, with headquarters at Fargo, N. D., has been transferred to Seattle, Wash. The position of general agent at Fargo has been abolished.

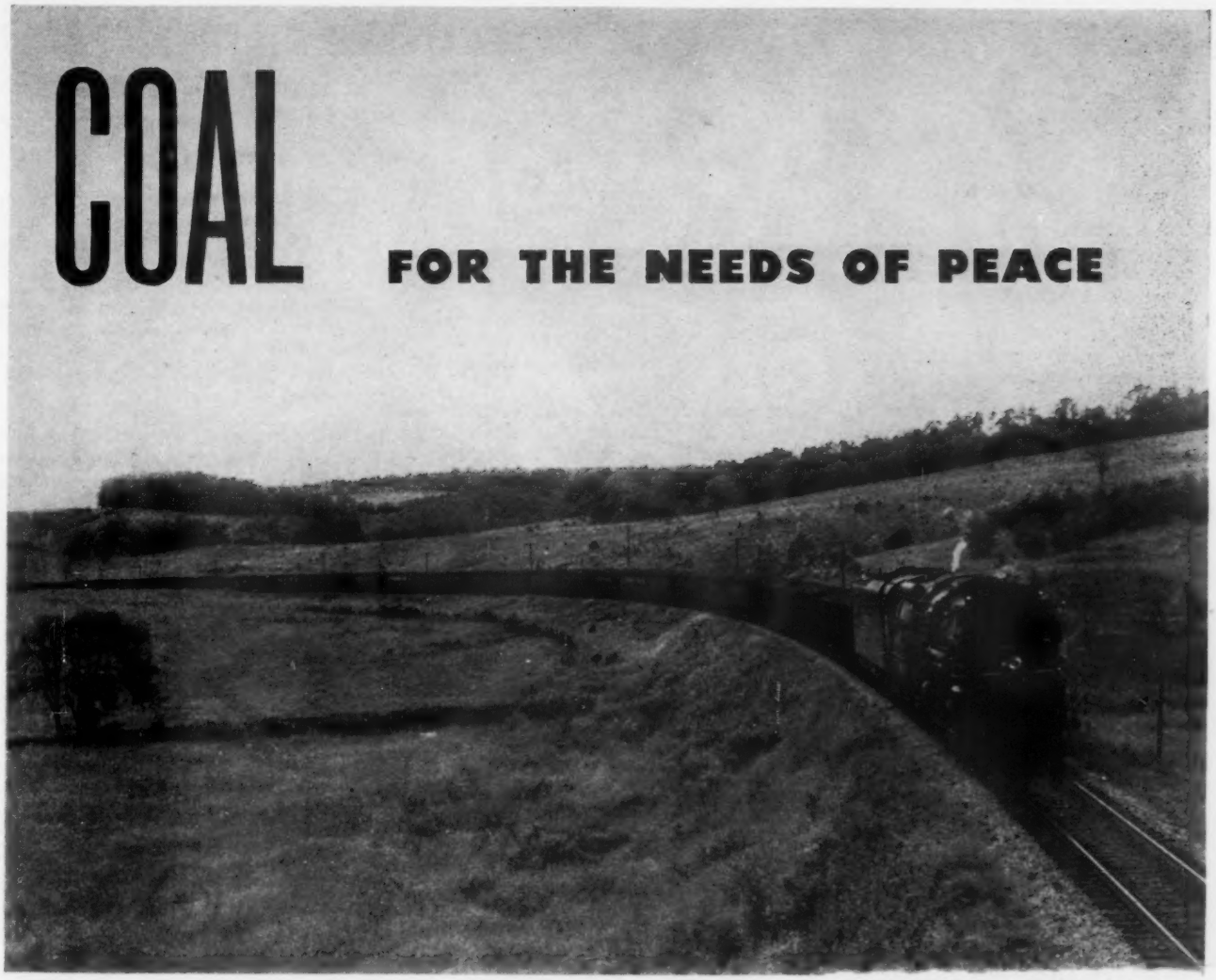
Ralph C. Trovillion, general freight traffic manager of the Missouri-Kansas-Texas at St. Louis, Mo., has been promoted to general traffic manager with headquarters at St. Louis and Dallas, Tex. **D. J. Collins,** freight traffic manager, has been assigned to assume some of the previous duties of Mr. Trovillion with headquarters as before at St. Louis. **Hugh R. Smith,** general freight agent, has been promoted to assistant freight traffic manager, rates, with headquarters at St. Louis, a newly-created position. **T. L. Hirshman,** assistant general freight agent at St. Louis, has been advanced to general freight agent, relieving Mr. Smith. **C. E. Veatch,** assistant general freight agent, has been promoted to general freight agent, solicitation, at St. Louis. **W. L. Meyers,** division freight and passenger agent, at Galveston, Tex., has been advanced to assistant general freight agent with headquarters at St. Louis, and **Norman Mansfield,** division freight agent, has been advanced to assistant general freight agent with headquarters as before at Dallas.

Photographs and sketches of Messrs. Trovillion, Collins, and Smith appeared on pages 1167 and 1168 of the *Railway Age* of June 30, at the time of their promotions to their previous positions.

Elbert L. Whitney, whose retirement as assistant freight traffic manager of the New York Central System, with headquarters at Chicago, was reported in the *Railway Age* of November 3, was born at Columbus, Ohio, on October 18, 1874, and obtained his first railroad experience with the Baltimore & Ohio at Columbus. Early in 1900, Mr. Whitney entered the service of the Toledo, St. Louis & Western (now part of the New York, Chicago & St. Louis) at Toledo, Ohio, and in 1908 he became connected with the Pittsburgh & Lake Erie (part of the New York Central System), with headquarters at Pittsburgh, Pa. In 1910, Mr. Whitney was sent to Chicago as chief clerk to the assistant freight traffic manager of the New York Central Lines. In 1922 he was appointed assistant to the vice-president of the Indiana Harbor Belt, the Chicago Junction, and the Chicago River & Indiana, continuing in that position until November, 1928. In the same year he became general coal and ore agent of the New York Central, West of Buffalo, and in 1931 he was made freight traffic manager of the same lines, with headquar-

News Department continued on next left-hand page

COAL FOR THE NEEDS OF PEACE



Virginian Railway 2-6-6-6 built by Lima

The Lima-built 2-6-6-6s The Virginian Railway placed in service to handle the war's tremendous coal traffic demands, are already speeding fuel to meet the needs of reconverting industries.

Capable of hauling the heaviest freights, over mountain grades, at sustained high speeds, these giant steam locomotives meet the highest standards of motive power efficiency.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

ters at Chicago. In 1932 Mr. Whitney was made general freight agent of the New York Central, West of Buffalo, and on June 1, 1935, he was appointed to the same position for the entire system. In November, 1937, he was promoted to the position he held at the time of his retirement.

ENGINEERING & SIGNALING

D. J. Evans, maintenance assistant of the Baltimore & Ohio Chicago Terminal at Chicago, has been promoted to division engineer, with the same headquarters.

David A. Steel has been appointed assistant to chief engineer of the Baltimore & Ohio, with headquarters at Baltimore, Md.

H. D. Van Vranken, assistant division engineer of the Seaboard Air Line at Jacksonville, Fla., has been appointed chief engineer of the Jacksonville Terminal Company at Jacksonville.

O. T. Carroll has been appointed assistant engineer of the Peoria & Pekin Union at Peoria, Ill., succeeding **R. E. Copper**, whose appointment as acting chief engineer was reported in the *Railway Age* of April 7.

MECHANICAL

A. D. Macpherson, electrical engineer, department of research and development, of the Canadian National at Montreal, Que., has been appointed controller of test materials and research there.

Thomas H. Evans, whose promotion to chief mechanical officer of the Missouri-Kansas-Texas with headquarters at Parsons, Kan., was reported in the *Railway Age* of October 20, was born at Whitewright, Tex., on October 15, 1899, and entered railroad service on March 15, 1916, as a machinist apprentice of the Katy at Denison, Tex., completing his apprentice-

Thomas H. Evans

ship on April 5, 1920. After a brief period of service as a machinist with the St. Louis-San Francisco at Oklahoma City, Okla., he returned to the M-K-T in the same capacity at Denison, where he remained until April, 1921, when he became a machinist of the Louisiana & Northwestern at Homer, La. He again returned to the Katy as a machinist at Waco, Tex., on August 25, 1923, subsequently being promoted to gang foreman and general foreman. Mr. Evans became shop superintendent on February 1, 1940, and served in that capacity until his recent promotion.

A. R. Snyder, master mechanic of the Union Pacific at Cheyenne, Wyo., has been promoted to superintendent of motive power and machinery, with headquarters at Omaha, Neb. **Robert J. Dunn,** district foreman at North Platte, Neb., has been promoted to master mechanic, with headquarters at Denver, Colo., succeeding **James E. Gogerty,** who has been transferred to Cheyenne to succeed Mr. Snyder.

John McMullen, whose retirement as consulting engineer of the Erie at Cleveland, Ohio, was announced in the November 3 issue of *Railway Age,* was born in Balley Keel, County Down, Ireland, on December 20, 1871, and came to the United States in 1886. He entered railway service in 1888 as an apprentice in the Buffalo car shop of the Erie. He became a carpenter and cabinetmaker there in 1892 and a gang foreman in 1896. From 1904 to 1906 Mr.

John McMullen

McMullen served as passenger car foreman then as shop superintendent in North Paterson, N. J. He served as general piecework inspector at Meadville, Pa., until his appointment as shop superintendent at Kent, Ohio, in 1907. He transferred to Buffalo, N. Y., in 1912, where he was advanced to superintendent, car department, system, in 1913. Mr. McMullen became consulting engineer in 1941.

OBITUARY

R. J. Ross, general agent of the New York Central with headquarters at Omaha, Neb., died in that city on September 8.

William C. Deegan, trainmaster of the Baltimore & Ohio with headquarters at Massillon, Ohio, died recently in that city.

Col. Norman A. Ryan, general manager, Western lines, of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Seattle, Wash., who has been on leave of absence to serve as assistant chief of transportation and chief of the military railway division of the U. S. Army in Europe, died in New York on November 3.

G. F. Haucer, assistant division superintendent of the Chicago, Milwaukee, St. Paul & Pacific at Wausau, Wis., died in that city on October 17.

C. E. Schaff, who retired in 1926 as president of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., died at Miami, Fla., on October 5.

E. A. Park, superintendent of motive power and equipment of the Peoria & Pekin Union at Peoria, Ill., who has been on leave of absence since October 20, died recently in that city.

Otto Gersbach, who retired in July, 1944, as chief engineer of the Chicago River & Indiana, the Indiana Harbor Belt, and the Belt Railway of Chicago, died at his home in Montezuma, Iowa, on October 30.

W. J. Buckley, auditor of passenger and station accounts of the Chicago & North Western at Chicago, died in that city on October 5. Mr. Buckley was born on September 28, 1887, and entered railroad service in 1906 with the North Western as a clerk in the auditor of freight accounts office, subsequently holding a number of minor positions. In 1917 he resigned to go with the Fansteel Corporation, returning to the North Western in 1922. In 1936 he became assistant auditor of freight accounts, and on November 1, 1941, was advanced to the position he held at the time of his death.

Albert A. Drummond, assistant general traffic manager of the New York, New Haven & Hartford at Boston, Mass., died there on November 2. Mr. Drummond was born at Middleboro, Mass., on June 3, 1890, and entered railway service in 1907 as a freight clerk for the New York, New Haven & Hartford, spending his entire career with that railroad. Later in 1907, he became agent and telegraph operator; in 1909, relief agent, operator, and towerman; in 1915, traveling auditor; in 1918, station accountant; and in 1920, special accountant. He was advanced to auditor of freight receipts in 1925 and to auditor of revenue in 1933. In 1934 he became assistant to comptroller and was promoted in the same year to assistant freight traffic manager, thereafter to sales traffic manager. In May, 1937, Mr. Drummond was appointed assistant general traffic manager, the post he was maintaining at the time of his death.

NEW HAVEN VETERANS.—The New York, New Haven & Hartford reports that of the 6,954 of its employees who entered military service, 78 per cent of the first 828 discharged have resumed their affiliation with the railroad. Some veterans have been up-graded from their former jobs, because of accrued seniority while in the service. The railroad further reports that it "is exerting every effort to place partially disabled returning veterans into jobs commensurate with their abilities and seniorities."

Table of Operating Revenues and Expenses appears on next left-hand page

The Franklin System of Steam Distribution

with O. C. Poppet Valves

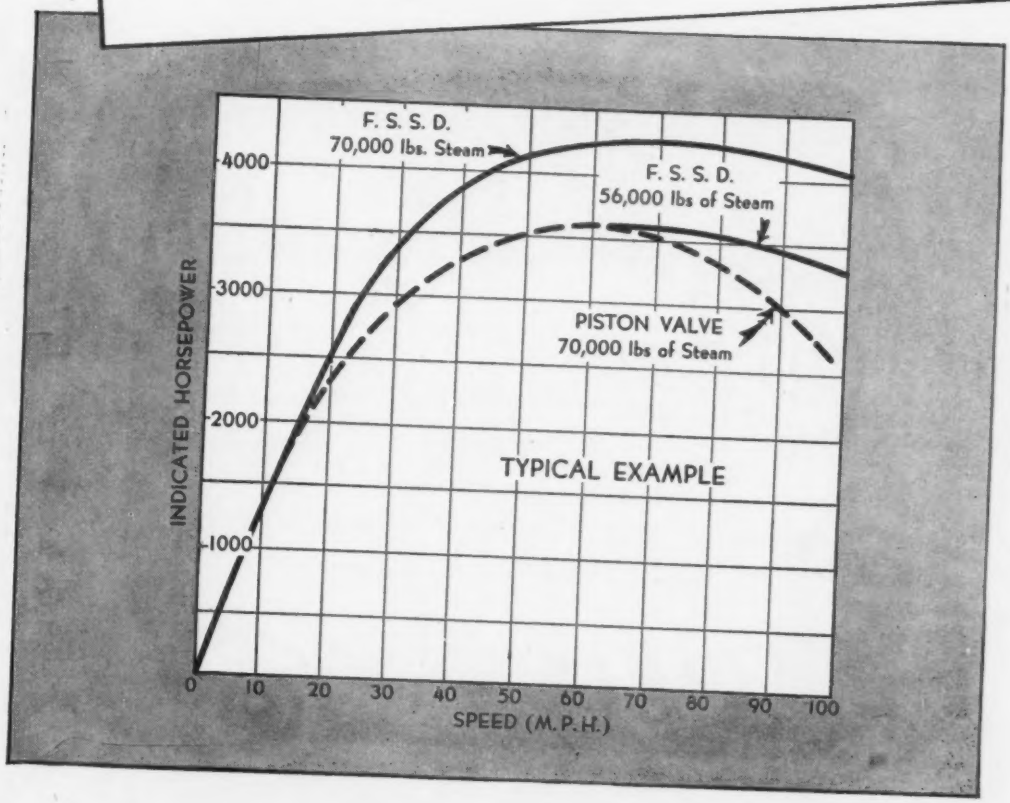
produces over the Conventional Piston Valve Arrangement

more than

20% Steam Saving — 33% Fuel Saving at same speeds and horsepower

or

with same steam consumption up to 35%, or more, increase in Indicated Horsepower



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK • CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

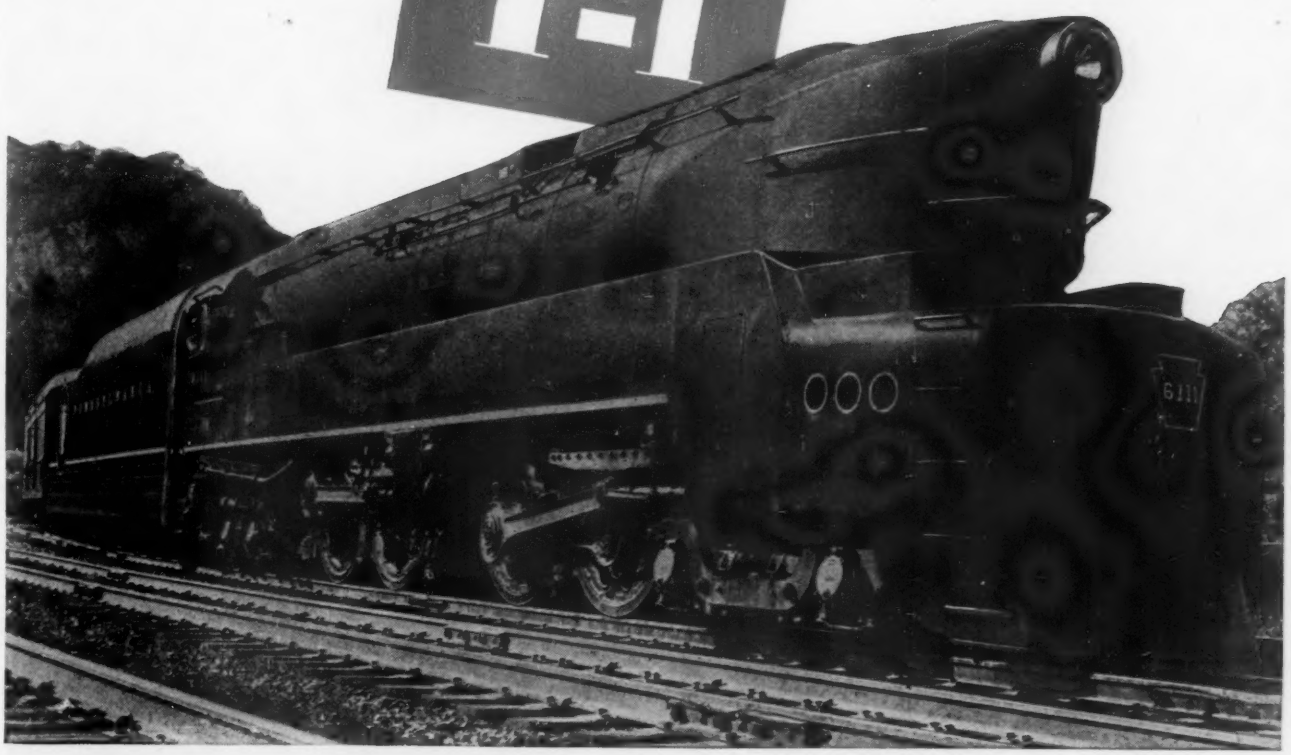
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF SEPTEMBER AND NINE MONTHS OF CALENDAR YEAR 1945

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	Net railway operating income 1944
Akron, Canton & Youngstown	Sept.	171	246,358	133	270,328	92,664	40,818	16,874	112,157	280,454	103.7	—10,126	—6,018	—19,142	47,155
	9 mos.	171	3,230,492	1,528	3,390,960	734,144	344,440	165,733	1,069,546	2,477,835	73.1	913,125	381,477	345,597	596,525
Alton	Sept.	959	1,428,908	691,293	2,417,632	467,526	589,897	68,482	942,824	2,194,477	90.8	223,155	163,056	—98,382	357,140
	9 mos.	959	18,426,924	6,314,751	27,851,812	3,803,972	4,498,376	654,245	9,477,549	19,593,831	70.4	8,257,981	3,412,146	3,083,138	3,000,247
Atchison, Topeka & Santa Fe System	Sept.	13,113	24,585,395	9,772,710	36,852,481	18,542,143	56,801,266	633,880	11,199,797	87,851,472	238.4	—50,998,991	—40,100,181	—11,122,991	5,796,882
	9 mos.	13,115	310,020,088	79,534,671	415,964,873	72,269,079	118,792,704	5,752,933	112,175,161	314,971,435	75.7	100,993,438	67,044,965	28,622,136	40,125,367
Atlanta & West Point	Sept.	93	192,998	160,083	390,997	31,043	435,502	10,676	158,213	654,913	167.5	—263,916	—260,818	—18,229	34,403
	9 mos.	93	2,372,929	1,271,093	4,019,347	421,428	933,798	97,926	1,474,507	3,101,362	77.2	917,985	473,494	225,901	300,748
Western of Alabama	Sept.	133	234,110	167,409	433,276	86,431	623,754	10,461	149,621	888,414	205.1	—455,138	—410,992	—45,878	40,444
	9 mos.	133	2,328,206	1,319,913	3,958,170	551,058	1,162,045	96,978	1,324,668	3,295,439	83.3	662,731	370,378	262,074	416,063
Atlanta, Birmingham & Coast	Sept.	639	357,226	46,381	434,601	134,025	111,954	29,664	271,260	573,104	131.9	—138,503	—188,468	25,795	26,662
	9 mos.	639	5,725,184	458,594	6,485,277	1,056,079	1,039,807	273,593	2,581,982	5,174,245	79.8	1,511,032	629,041	341,410	298,083
Atlantic Coast Line	Sept.	4,935	5,124,783	3,221,348	9,081,966	2,242,802	2,297,103	194,518	3,357,217	8,522,045	93.8	559,921	450,000	101,603	554,372
	9 mos.	4,935	69,280,827	30,862,543	106,967,120	17,601,067	20,717,139	1,805,495	34,909,503	78,741,529	73.6	28,225,591	19,550,000	5,471,322	10,494,730
Charleston & Western Carolina	Sept.	343	219,865	27,076	255,836	71,777	63,341	10,758	105,700	258,973	101.2	—3,137	15,000	—18,780	23,127
	9 mos.	343	2,883,313	175,257	3,141,165	598,377	587,908	95,316	1,134,923	2,477,464	78.9	663,701	345,000	271,030	595,201
Baltimore & Ohio	Sept.	6,130	22,247,703	3,510,671	27,326,658	4,398,319	6,229,591	552,349	10,137,665	22,450,067	82.2	4,876,591	1,439,395	2,683,190	3,227,411
	9 mos.	6,131	231,598,516	36,740,547	283,229,167	38,809,100	58,514,810	4,809,213	97,678,051	209,929,071	74.1	73,300,096	34,071,966	33,154,208	34,410,122
Staten Island Rapid Transit	Sept.	29	207,888	136,495	355,130	54,739	43,658	1,192	141,166	264,772	74.6	90,358	33,873	33,375	65,661
	9 mos.	29	2,766,525	1,298,818	4,164,857	504,058	429,475	12,698	1,437,924	2,611,204	62.7	1,553,654	566,626	728,418	918,255
Bangor & Aroostook	Sept.	602	555,859	73,005	679,315	93,381	156,148	6,335	201,079	488,937	72.0	190,378	111,692	101,064	120,005
	9 mos.	602	6,839,020	706,864	7,855,122	1,514,728	1,208,997	56,198	2,111,614	5,199,840	66.2	2,655,282	1,883,276	886,308	1,046,381
Bessemer & Lake Erie	Sept.	214	1,733,113	1,776	1,745,682	161,686	738,778	13,306	344,685	1,297,970	74.4	447,712	229,872	417,116	399,197
	9 mos.	214	14,076,105	20,847	14,224,428	1,325,243	6,725,025	119,903	3,048,005	11,579,143	81.4	2,645,285	1,787,971	2,850,078	3,391,408
Boston & Maine	Sept.	1,789	4,035,876	1,568,093	6,144,793	1,162,650	1,153,142	88,963	2,381,040	5,041,079	82.0	1,103,714	498,202	408,416	1,007,267
	9 mos.	1,789	43,017,805	14,610,360	63,295,020	10,715,561	11,418,246	812,055	23,387,896	48,573,571	76.7	14,721,449	6,190,167	5,982,889	7,719,907
Burlington, Rock Island	Sept.	228	177,928	63,023	262,876	47,298	28,361	3,468	91,495	185,632	70.6	77,244	10,202	26,715	53,403
	9 mos.	228	1,648,594	644,331	2,455,355	310,459	268,353	33,461	826,939	1,576,592	64.2	878,763	74,574	423,540	446,457
Cambria & Indiana	Sept.	35	114,158	.....	114,226	10,426	49,899	568	15,636	83,007	72.67	31,219	77,622	47,715	56,736
	9 mos.	35	1,200,538		1,201,302	106,052	424,541	5,344	161,486	760,063	63.26	441,239	802,096	444,818	484,948
Canadian Pacific Lines in Maine	Sept.	234	292,172	133,041	472,984	166,795	74,660	7,161	148,964	411,313	87.0	61,671	21,472	—29,335	—7,973
	9 mos.	234	3,908,463	887,377	5,130,022	773,963	695,051	60,305	1,625,364	3,263,674	63.6	1,866,348	198,722	922,627	1,126,138
Canadian Pacific Lines in Vermont	Sept.	90	66,491	40,505	120,627	29,759	26,082	2,591	91,089	154,236	127.9	—33,609	10,626	—77,935	—66,379
	9 mos.	90	740,489	189,272	1,044,362	317,972	264,298	21,945	891,073	1,541,289	147.6	—496,927	91,552	—918,385	—737,459
Central of Georgia	Sept.	1,815	1,872,329	708,989	2,825,451	496,620	625,480	72,966	1,220,952	2,565,901	90.8	259,550	178,988	107,993	418,063
	9 mos.	1,815	20,013,240	6,431,066	29,313,247	4,217,178	5,547,753	646,061	11,369,164	23,092,736	78.8	6,220,511	1,125,157	3,791,345	4,991,981
Central of New Jersey	Sept.	654	3,377,245	572,004	4,208,741	523,467	830,146	59,585	1,765,207	3,336,137	79.3	872,604	397,188	309,805	507,152
	9 mos.	654	35,393,542	5,425,269	43,599,818	4,602,476	7,846,352	532,508	17,589,085	32,139,957	73.7	11,459,861	4,735,272	4,523,376	4,176,796
Central Vermont	Sept.	422	539,772	76,000	684,344	84,222	119,612	10,357	316,138	555,618	81.2	128,726	37,414	37,652	18,512
	9 mos.	422	5,012,355	713,000	6,243,565	983,362	1,085,955	88,339	2,963,418	5,375,252	86.1	868,313	284,850	77,424	613,503
Chesapeake & Ohio	Sept.	3,079	13,705,375	2,070,150	16,455,397	2,794,779	3,805,697	265,130	4,834,037	12,360,532	75.1	4,094,865	2,079,630	2,422,291	2,913,600
	9 mos.	3,077	136,468,744	15,531,920	157,782,314	22,057,833	34,910,426	2,310,574	44,985,348	109,408,528	69.3	48,373,786	29,302,165	23,730,121	25,236,000
Chicago & Eastern Illinois	Sept.	912	1,351,386	503,908	2,074,188	332,665	459,001	66,444	847,323	1,812,835	87.4	261,352	—35,350	158,602	93,835
	9 mos.	912	16,152,046	5,035,489	23,248,862	2,904,488	4,130,077	627,378	8,324,528	16,943,929	72.9	6,304,932	2,492,950	2,122,079	2,419,113
Chicago & Illinois Midland	Sept.	131	547,012	998	576,210	133,279	93,236	21,305	143,714	415,737	72.2	160,473	85,172	73,721	78,763
	9 mos.	131	4,739,357	5,080	5,006,399	832,818	820,220	202,544	1,263,009	3,364,298	67.2	1,642,101	992,759	703,118	733,838
Chicago & North Western	Sept.	8,065	10,084,623	3,016,420	14,473,179	1,946,100	2,865,800	212,587	4,870,123	10,419,520	72.0	4,053,659	1,743,274	2,031,772	2,003,894
	9 mos.	8,068	86,545,124	27,878,356	127,930,827	17,941,655	24,742,608	1,993,289	43,690,036	93,098,094	72.8	34,832,733	17,802,866	17,151,349	17,750,809
Chicago, Burlington & Quincy	Sept.	8,964	13,989,544	2,916,066	18,563,710	3,997,689	2,858,953	275,440	5,046,104	12,732,369	68.6	5,831,341	3,726,596	1,671,628	1,952,627
	9 mos.	8,977	146,363,973	27,594,119	189,520,333	29,780,064	26,765,662	2,577,973	46,267,506	110,433,896	58.3	79,086,437	52,488,603	24,140,209	20,101,145
Chicago Great Western	Sept.	1,500	1,788,682	189,713	2,190,495	387,965	334,208	68,346	869,945	1,737,135	79.3	453,360	163,573	108,328	234,104
	9 mos.	1,500	18,455,129	1,994,061	22,199,084	3,493,901	3,047,390	591,705	8,316,291	16,119,804	72.6	6,079,280	2,696,426	1,991,487	2,377,065
Chicago, Indianapolis & Louisville	Sept.	541	663,178	49,202	769,211	107,912	142,485	32,569	291,843	610,737	79.4	158,474	45,064	54,000	141,856
	9 mos.	541	7,853,372	583,345	9,012,713	1,042,724	1,655,499	303,376	2,974,622	6,318,828	70.1	2,693,885	698,893	1,511,853	1,983,965

Table continued on next left-hand page

the Pennsylvania's T-1



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That Security Circulators are recognized as an important contribution to modern locomotive design is shown by their use in The Pennsylvania Railroad's famous T-1 class locomotives, each of which has five circulators in the firebox.

AMERICAN ARCH COMPANY, INC.

NEW YORK • CHICAGO

SECURITY CIRCULATOR DIVISION

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF SEPTEMBER AND NINE MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	Net railway operating income 1944
Chicago, Milwaukee, St. Paul & Pacific	Sept.	10,730	$13,598,727	$3,119,160	$18,456,401	$3,899,537	$6,468,412	$284,207	$6,464,457	$17,812,457	96.5	$643,944	—$1,888,000	$1,977,342	$3,165,376
	9 mos.	10,726	130,865,075	25,899,765	173,939,615	34,321,890	31,992,018	2,688,584	57,825,657	133,082,543	76.5	40,857,072	17,228,000	21,503,234	23,961,683
Chicago, Rock Island & Pacific	Sept.	7,753	10,464,392	3,438,529	14,991,520	2,550,331	2,232,697	344,737	4,703,781	10,432,535	69.6	4,558,985	2,684,503	1,191,853	1,766,908
	9 mos.	7,750	108,005,581	31,444,062	150,231,943	21,907,895	21,080,513	3,150,485	42,849,534	94,401,548	62.8	55,830,395	30,002,560	20,677,113	22,672,603
Chicago, St. Paul, Minneapolis & Omaha	Sept.	1,617	1,998,043	354,864	2,555,575	341,112	350,934	37,924	914,231	1,725,169	67.5	830,406	281,273	430,347	344,913
	9 mos.	1,617	15,599,367	3,425,888	20,849,582	2,897,538	3,078,789	365,066	8,266,522	15,345,735	73.6	5,503,847	1,969,244	2,923,402	2,456,095
Clinchfield	Sept.	302	856,493	9,833	877,171	87,589	192,452	22,865	241,806	565,220	64.4	311,951	105,591	250,930	474,456
	9 mos.	302	10,172,223	100,976	10,354,725	883,663	1,771,231	201,069	2,371,910	5,417,587	52.3	4,937,138	1,141,183	4,044,564	4,672,653
Colorado & Southern	Sept.	748	951,688	263,372	1,310,617	205,678	195,786	16,814	369,823	834,099	63.6	476,518	186,788	249,724	239,514
	9 mos.	748	8,387,894	2,447,858	11,757,680	1,827,506	1,949,610	160,559	3,701,963	8,075,010	68.7	3,682,670	1,373,953	1,810,778	2,108,400
Fort Worth & Denver City	Sept.	804	742,942	417,917	1,256,200	264,400	189,024	26,863	342,626	877,573	69.9	378,627	154,900	181,784	131,555
	9 mos.	804	7,740,500	3,687,779	12,396,217	2,863,975	1,844,189	242,959	3,209,873	8,699,558	70.2	3,696,659	1,547,843	1,755,539	2,251,244
Colorado & Wyoming	Sept.	42	77,854	.....	123,597	11,135	19,090	667	44,149	79,457	64.3	44,140	21,745	22,269	31,640
	9 mos.	42	694,461	.....	1,150,698	118,256	175,533	6,638	436,188	778,216	67.6	372,482	195,488	177,111	293,600
Columbus & Greenville	Sept.	168	96,241	7,903	113,711	30,702	21,476	5,587	48,601	122,875	108.1	—9,164	2,326	—13,172	10,247
	9 mos.	168	1,046,737	81,468	1,202,389	293,399	179,969	42,269	421,046	1,071,019	89.1	131,370	121,271	24,776	80,986
Delaware & Hudson	Sept.	846	3,296,105	216,806	3,609,629	467,243	928,904	45,456	1,300,818	2,857,731	79.2	751,898	358,507	408,612	829,906
	9 mos.	846	32,642,750	1,817,304	35,468,345	4,538,029	9,284,556	431,923	12,816,511	28,134,908	79.3	7,333,437	3,218,270	3,743,933	6,596,326
Delaware, Lackawanna & Western	Sept.	973	4,042,900	806,614	5,380,808	820,695	1,058,690	108,528	2,390,142	4,559,121	84.7	821,687	508,000	280,137	—4,217,370
	9 mos.	973	42,591,092	8,182,236	56,065,421	7,182,407	9,882,709	1,029,375	24,143,672	43,917,683	78.3	12,147,738	7,275,633	3,723,717	3,883,892
Denver & Rio Grande Western	Sept.	2,386	4,584,179	901,983	5,726,384	3,658,462	10,498,734	97,218	1,790,599	16,249,246	283.8	—10,522,862	223,267	—10,853,891	1,334,990
	9 mos.	2,386	48,387,791	7,373,479	58,086,790	9,158,517	19,840,450	903,348	16,443,085	48,162,150	82.9	9,924,640	11,153,145	—2,165,241	10,527,578
Denver & Salt Lake	Sept.	232	283,414	7,887	304,417	52,877	55,793	3,282	106,110	229,534	75.4	74,883	29,970	93,244	110,029
	9 mos.	232	2,198,456	82,103	2,381,522	458,806	495,775	29,515	792,238	1,884,617	79.1	496,905	269,934	666,114	659,451
Detroit & Mackinac	Sept.	230	64,987	7,439	79,489	18,772	15,917	611	31,090	70,353	88.5	9,136	4,451	776	10,082
	9 mos.	230	572,503	93,748	736,744	171,077	144,122	7,050	282,549	638,980	86.7	97,764	39,393	29,324	30,034
Detroit & Toledo Shore Line	Sept.	50	265,071	.....	266,945	46,322	24,842	9,191	96,923	185,839	69.9	81,106	27,706	6,823	56,245
	9 mos.	50	3,126,115	.....	3,140,911	352,095	255,767	90,264	920,071	1,696,646	54.0	1,444,265	483,022	438,646	525,209
Detroit, Toledo & Ironton	Sept.	464	473,482	1,301	506,620	104,388	127,106	15,062	190,421	461,683	91.1	44,937	31,093	14,139	147,152
	9 mos.	464	6,300,442	13,656	6,577,026	880,598	1,132,314	137,104	1,869,804	4,253,080	64.7	2,323,946	1,057,884	1,262,947	1,516,909
Duluth, Missabe & Iron Range	Sept.	546	4,550,887	4,323	5,309,050	396,083	562,312	4,792	955,505	1,960,824	36.9	3,348,226	1,539,474	1,834,578	1,886,298
	9 mos.	546	27,974,035	50,303	32,405,543	3,505,085	4,992,399	44,327	6,519,295	15,439,550	47.6	16,965,993	7,836,112	9,253,192	9,511,139
Duluth, Winnipeg & Pacific	Sept.	175	188,000	1,900	196,400	55,781	33,799	2,525	85,627	181,586	92.5	14,814	16,337	—23,169	—18,667
	9 mos.	175	1,954,000	23,400	2,024,700	447,775	279,294	21,663	834,200	1,619,888	80.0	404,812	161,528	7,738	246,632
Elgin, Joliet & Eastern	Sept.	392	1,684,067	14	2,067,966	274,801	739,073	16,831	832,265	1,922,270	92.0	145,696	84,046	—17,087	356,129
	9 mos.	392	21,227,451	342	24,849,365	2,487,960	6,969,043	155,788	8,882,566	19,074,680	76.8	5,774,685	2,785,465	2,252,044	2,432,985
Erie	Sept.	2,243	8,042,875	1,141,417	9,861,309	1,551,650	2,147,162	250,292	4,388,421	9,125,990	92.5	735,319	—605,771	829,155	1,524,468
	9 mos.	2,243	92,567,265	9,537,222	109,197,682	12,113,095	20,111,854	2,128,247	43,620,860	83,099,114	76.1	26,098,568	8,308,116	11,867,873	15,238,533
Florida East Coast	Sept.	682	809,913	879,429	1,874,254	316,491	357,569	48,371	661,316	1,526,656	81.5	347,598	110,510	194,140	339,024
	9 mos.	682	11,027,226	10,053,069	23,006,026	3,002,712	3,001,882	528,299	6,939,259	14,649,051	63.7	8,356,975	3,746,503	3,804,752	4,886,035
Georgia Railroad	Sept.	328	528,634	180,854	749,176	86,193	138,340	22,226	311,932	581,598	77.6	167,578	32,767	139,872	175,458
	9 mos.	328	5,539,732	1,392,297	7,325,274	864,683	1,246,206	200,792	2,877,386	5,395,603	73.5	1,929,671	298,036	1,622,862	2,281,296
Georgia & Florida	Sept.	408	142,333	5,416	151,519	40,855	23,265	10,559	62,481	144,071	95.1	7,448	10,302	—11,103	—7,752
	9 mos.	408	1,524,193	44,941	1,613,346	420,939	242,133	96,810	585,346	1,413,040	87.6	200,306	96,408	8,667	113,447
Grand Trunk Western	Sept.	1,026	2,325,000	446,000	2,938,000	579,784	510,800	39,565	1,156,683	2,388,837	81.3	549,163	259,048	291,298	262,465
	9 mos.	1,026	22,747,000	3,180,000	27,744,000	5,114,716	4,688,374	338,250	10,971,880	22,101,403	79.7	5,642,597	1,846,081	3,495,328	3,701,584
Canadian National Lines in New England	Sept.	172	151,000	10,100	177,600	73,848	18,955	2,379	81,646	189,027	106.4	—11,427	21,189	—68,748	—93,979
	9 mos.	172	1,454,600	118,700	1,790,100	486,373	252,754	20,537	884,006	1,848,910	103.3	—58,810	190,701	—615,963	—822,953
Great Northern	Sept.	8,371	14,566,318	1,589,123	17,541,895	3,477,238	7,195,421	239,292	4,908,466	16,272,877	92.8	1,269,018	—2,446,349	3,655,657	4,122,322
	9 mos.	8,371	129,428,262	14,566,634	155,434,240	26,329,000	32,693,645	2,122,871	42,526,283	107,874,689	69.4	47,559,551	22,059,041	25,080,108	23,039,682
Green Bay & Western	Sept.	234	197,946	560	204,748	53,868	22,526	8,685	70,792	163,412	79.8	41,336	33,002	747	881
	9 mos.	234	1,974,369	4,916	2,037,689	578,977	208,267	76,839	665,262	1,610,129	79.0	427,560	301,983	64,436	127,167
Gulf & Ship Island	Sept.	259	236,546	65,899	316,290	53,742	43,536	2,832	88,976	195,199	61.7	121,091	65,751	41,128	63,439
	9 mos.	259	1,914,526	440,016	2,559,190	463,586	272,364	25,731	891,602	1,723,988	67.4	835,202	363,838	329,118	319,079

Table continued on next left-hand page

IN THE *Long* RUN

Old superheater units are transformed into remanufactured units at our plant at a small cost. Figure it on an extended mileage basis and you will find that it pays in the long run.

Standardize on this service for your old units.

THE
SUPERHEATER
COMPANY

Representative of AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK
122 S. Michigan Ave., CHICAGO
Montreal, Canada, THE SUPERHEATER COMPANY, LTD.

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Superheaters • Superheater Pyrometers • Exhaust Steam Injectors • Steam Dryers • Feedwater Heaters • American Throttles

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF SEPTEMBER AND NINE MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	Net railway operating income 1944
Gulf, Mobile & Ohio	Sept.	1,945	$2,681,367	$314,831	$3,090,785	$651,194	$626,476	$89,965	$975,234	$2,467,828	79.8	$622,957	$182,004	$237,495	$343,726
	9 mos.	1,944	26,391,569	2,133,564	29,459,789	4,755,691	5,042,517	785,410	8,143,888	19,888,967	67.5	9,570,822	5,094,166	3,076,660	3,505,805
Illinois Central	Sept.	4,822	10,805,156	2,764,997	14,558,562	2,654,110	3,018,788	230,716	4,987,407	11,610,579	79.8	2,947,983	1,842,188	1,092,884	1,546,274
	9 mos.	4,823	125,339,504	25,984,219	161,587,550	23,740,017	28,916,090	1,983,039	47,404,900	108,232,687	67.0	53,354,863	33,381,188	18,222,927	19,143,314
Yazoo & Mississippi Valley	Sept.	1,524	2,187,351	312,693	2,604,822	583,875	279,710	40,040	856,946	1,848,288	71.0	756,534	377,796	309,489	606,561
	9 mos.	1,524	21,099,158	3,072,905	25,465,903	4,752,039	3,034,194	341,796	7,901,384	16,860,480	66.2	8,605,423	4,454,988	3,257,144	3,765,024
Illinois Central System	Sept.	6,346	12,992,507	3,077,690	17,163,384	3,237,985	3,298,498	270,756	5,844,353	13,458,867	78.4	3,704,517	2,225,310	1,407,286	2,155,749
	9 mos.	6,347	146,438,662	29,057,124	187,053,453	28,492,056	31,950,284	2,324,835	55,306,284	125,093,167	66.9	61,960,286	37,886,972	21,528,287	22,955,555
Illinois Terminal	Sept.	476	466,526	147,979	691,996	104,599	111,018	19,272	274,286	534,313	77.21	157,683	51,147	86,391	122,922
	9 mos.	476	6,226,870	1,566,113	8,493,104	1,010,368	1,039,809	179,544	2,668,659	5,146,099	60.59	3,347,005	2,119,914	1,020,914	1,045,207
Kansas City Southern	Sept.	890	2,067,394	310,402	2,566,877	308,382	370,746	67,085	806,181	1,684,636	65.6	882,241	170,000	545,431	595,875
	9 mos.	890	24,719,045	2,498,702	29,068,178	3,689,938	3,906,008	588,436	8,003,529	17,331,310	59.6	11,736,868	5,330,000	4,605,046	4,355,445
Kansas, Oklahoma & Gulf	Sept.	328	298,282	1,818	303,299	66,432	28,076	10,594	76,339	194,124	64.0	109,175	47,092	36,102	89,140
	9 mos.	328	3,371,289	17,177	3,420,313	463,417	241,663	91,175	745,204	1,647,734	48.2	1,772,579	791,306	750,904	719,655
Lake Superior & Ishpeming	Sept.	156	312,367	114	384,713	39,326	28,385	812	64,953	141,092	36.7	243,621	114,731	135,605	187,924
	9 mos.	156	1,913,550	1,261	2,313,720	317,531	283,804	6,417	484,650	1,165,103	50.4	1,148,617	626,473	602,547	722,742
Lehigh & Hudson River	Sept.	96	211,458	10	211,986	54,616	38,834	5,891	70,581	176,860	83.4	35,126	3,985	15,469	18,352
	9 mos.	96	2,382,013	Dr. 981	2,387,258	376,113	371,619	49,959	750,437	1,610,816	67.5	776,442	356,963	207,750	205,144
Lehigh & New England	Sept.	190	522,040	.....	525,759	49,953	135,842	7,529	157,506	370,956	70.6	154,803	73,844	93,450	114,995
	9 mos.	190	4,156,469	.....	4,202,738	479,209	1,182,824	69,881	1,351,333	3,263,305	77.6	939,433	466,955	651,796	1,012,712
Lehigh Valley	Sept.	1,254	5,204,974	659,693	6,179,715	878,344	1,204,083	120,987	2,430,960	4,862,136	78.7	1,317,579	495,544	590,315	1,336,973
	9 mos.	1,259	51,601,904	5,983,885	61,343,166	8,540,027	11,211,879	1,090,408	25,196,533	48,107,247	78.4	13,235,919	5,796,439	3,796,777	9,132,175
Louisiana & Arkansas	Seept.	834	1,093,984	120,071	1,266,045	130,655	163,457	35,995	356,567	731,394	57.8	534,651	275,408	181,339	267,559
	9 mos.	834	13,567,294	1,319,353	15,378,304	2,457,340	1,707,032	316,217	3,482,489	8,421,686	54.8	6,956,618	4,220,462	2,027,439	1,727,696
Louisville & Nashville	Sept.	4,754	10,620,911	2,360,792	13,861,744	2,049,160	3,468,844	221,508	5,223,473	11,517,186	83.1	2,344,558	1,339,943	1,396,397	1,970,519
	9 mos.	4,755	116,594,911	28,254,796	153,897,852	17,628,326	28,787,267	1,996,019	49,047,522	102,454,216	66.6	51,443,636	36,326,352	18,331,480	18,609,030
Maine Central	Sept.	988	1,255,946	266,917	1,625,694	532,448	311,464	8,884	579,863	1,487,302	91.5	138,392	3,155	77,050	117,205
	9 mos.	988	11,954,909	2,711,363	15,741,512	3,622,862	2,815,878	123,615	5,551,964	12,573,233	79.9	3,168,279	1,428,520	1,328,529	1,376,806
Midland Valley	Sept.	334	130,019	34	133,553	35,661	11,598	2,418	47,327	101,836	76.3	31,717	3,151	19,619	23,074
	9 mos.	334	1,283,805	1,072	1,308,652	264,545	127,196	22,550	425,393	881,816	67.4	426,836	128,567	215,048	177,840
Minneapolis & St. Louis	Sept.	1,408	1,382,965	28,044	1,459,126	205,347	215,032	73,666	406,782	973,635	66.7	485,491	185,248	250,672	109,019
	9 mos.	1,408	10,846,789	350,673	11,639,407	2,300,302	1,870,987	599,078	3,540,806	8,849,358	76.0	27,900,049	1,458,287	1,282,469	1,288,694
Minneapolis, St. Paul & Sault. Ste. Marie	Sept.	3,224	2,825,436	143,894	3,143,984	436,644	1,039,123	38,142	1,024,211	2,610,559	83.0	533,425	426,852	62,964	580,643
	9 mos.	3,224	17,144,952	1,384,843	19,980,177	3,587,501	4,025,931	356,434	7,668,217	16,258,468	81.4	3,721,709	2,401,328	1,720,068	4,900,329
Duluth, South Shore & Atlantic	Sept.	550	284,377	30,221	342,371	65,198	55,532	11,191	130,875	270,474	79.0	71,897	19,238	48,417	70,815
	9 mos.	550	2,745,529	215,915	3,196,300	628,339	524,394	100,284	1,236,160	2,562,046	80.2	634,254	161,945	449,529	518,823
Spokane International	Sept.	152	129,948	3,067	140,755	51,863	24,735	3,169	42,101	129,646	92.1	11,109	—14,260	13,661	19,483
	9 mos.	152	1,529,947	41,094	1,658,009	390,599	160,693	29,276	402,776	1,048,903	63.3	609,106	309,855	196,638	179,925
Mississippi Central	Sept.	158	133,884	24,158	161,422	37,070	23,616	9,806	43,118	120,357	74.6	41,065	10,593	13,278	30,567
	9 mos.	158	1,389,298	66,701	1,491,163	301,711	180,846	82,084	376,109	1,003,333	67.3	487,830	164,893	203,965	284,796
Missouri & Arkansas	Sept.	365	135,125	2,316	144,872	46,964	25,189	6,842	75,569	160,772	110.9	—15,900	7,227	—39,633	16,790
	9 mos.	365	1,628,730	20,266	1,721,828	583,661	233,086	68,344	804,156	1,752,253	101.7	—30,425	20,192	—310,123	185,178
Missouri-Illinois	Sept.	172	310,810	1,588	314,209	49,725	37,029	4,332	90,956	189,101	60.2	125,108	74,758	34,193	75,614
	9 mos.	172	2,653,047	6,151	2,671,424	427,656	337,282	39,822	669,609	1,530,192	57.3	1,141,232	761,300	325,740	397,694
Missouri-Kansas-Texas Lines	Sept.	3,253	4,197,459	1,184,959	5,883,184	1,165,445	1,187,005	141,025	1,764,891	4,479,120	76.1	1,404,064	666,071	471,608	356,650
	9 mos.	3,253	53,091,360	9,598,333	67,619,601	14,584,447	8,180,195	1,325,569	18,482,644	44,728,791	66.2	22,890,810	13,935,671	5,524,075	4,834,784
Missouri Pacific	Sept.	7,082	13,328,672	2,918,720	17,596,511	2,534,952	2,704,202	311,067	5,513,054	11,612,720	66.0	5,983,791	2,935,362	2,337,275	3,302,853
	9 mos.	7,082	133,418,240	25,341,085	171,268,583	21,223,558	24,929,574	2,760,304	48,871,927	102,764,513	60.0	68,504,070	38,318,289	23,764,070	25,606,119
Gulf Coast Lines	Sept.	1,734	2,056,597	291,905	2,464,086	461,182	332,404	53,709	780,420	1,715,835	69.6	748,251	365,211	225,848	335,020
	9 mos.	1,734	28,639,825	2,679,467	32,593,190	5,379,050	3,294,450	507,078	8,458,291	18,428,767	56.5	14,164,423	6,642,070	4,149,332	5,176,103
International-Great Northern	Sept.	1,110	1,472,195	482,897	2,175,272	403,352	302,330	39,584	775,045	1,617,910	74.4	557,362	171,476	252,382	267,654
	9 mos.	1,110	15,818,711	4,228,765	22,225,462	4,161,381	3,113,265	337,401	7,425,830	15,918,718	71.6	6,306,744	2,199,693	2,571,715	2,585,548
Monongahela	Sept.	170	460,824	2,064	465,890	58,962	45,371	607	124,550	232,980	50.0	232,910	61,416	83,151	48,088
	9 mos.	170	4,485,152	20,868	4,536,552	608,982	426,268	5,872	1,250,215	2,326,446	51.3	2,210,106	563,864	822,537	971,343

Table continued on next left-hand page

8½" Air Compressor for Clean Air plus After Cooler for Dry Air

Dry-Cleaned Air

The 8½" Air Compressor and Aftercooler pull together to insure a dependable supply of ***dry-cleaned*** air. An efficient suction filter keeps dirt out of the compressor and metered lubrication keeps down wear—reduces carbonization—produces clean air but ***hot***.

The Aftercooler, by cooling the hot air, reduces the moisture content—dries the air before it enters the brake system. ***Dry-cleaned*** air in the brake system means more dependable brake action, better train handling.

WESTINGHOUSE AIR BRAKE CO.

WILMERDING, PA.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF SEPTEMBER AND NINE MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	Net railway operating income 1944
Montour	Sept.	51	$251,626	.....	$252,924	$17,326	$64,541	$1,008	$77,838	$169,035	66.8	$83,889	$61,386	$64,084	$71,408
	9 mos.	51	2,201,241	.....	2,212,375	183,185	542,326	9,066	676,605	1,488,992	67.3	723,383	521,659	538,896	596,403
Nashville, Chattanooga & St. Louis	Sept.	1,071	2,029,275	$469,838	2,715,273	680,951	711,712	82,183	1,032,876	2,612,261	96.2	103,012	9,045	105,975	199,800
	9 mos.	1,071	23,157,555	4,537,308	29,858,622	4,991,725	6,133,266	761,238	9,612,155	22,332,602	74.8	7,526,020	4,555,648	2,879,781	2,820,541
New York Central	Sept.	10,749	31,745,042	12,683,094	49,306,292	8,695,120	11,263,733	722,400	20,097,689	43,173,547	87.6	6,132,745	904,243	4,125,261	5,455,952
	9 mos.	10,749	329,131,400	122,382,260	501,018,218	76,191,049	98,496,470	6,688,042	193,285,997	395,313,557	78.9	105,704,661	49,507,428	42,059,184	51,582,936
Pittsburgh & Lake Erie	Sepet.	229	2,206,628	93,415	2,385,741	354,116	980,681	44,778	956,561	2,445,513	102.5	—59,772	265,723	327,854	431,112
	9 mos.	229	22,502,335	966,009	24,336,943	3,124,240	8,466,347	404,106	8,547,758	21,553,234	88.6	2,783,709	4,179,988	3,578,892	4,247,783
New York, Chicago & St. Louis	Sept.	1,687	5,058,382	259,868	5,466,484	843,283	1,276,928	159,865	2,211,297	4,708,864	86.1	757,620	—521,689	1,038,402	824,558
	9 mos.	1,687	64,638,957	2,440,351	68,556,502	8,570,034	12,091,059	1,428,289	22,277,851	46,316,672	67.6	22,239,830	5,328,695	13,363,776	8,375,403
New York, New Haven & Hartford	Sept.	1,838	6,003,116	6,137,061	13,155,724	1,929,970	2,291,473	167,497	4,953,753	10,063,683	76.5	3,092,041	1,120,000	1,045,033	1,402,151
	9 mos.	1,838	65,461,657	56,557,009	132,305,799	16,862,145	21,590,763	1,463,055	47,370,679	93,893,265	71.0	38,412,534	15,130,005	13,623,360	17,141,059
New York Connecting	Sept.	21	155,660	.....	163,140	52,454	10,259	.....	55,831	120,207	73.7	42,933	61,396	143,777	116,988
	9 mos.	21	1,809,390	.....	2,001,091	453,591	126,216	.....	508,749	1,104,784	55.2	896,307	702,212	1,467,149	1,291,088
New York, Ontario & Western	Sept.	548	527,266	22,032	611,659	89,171	127,036	22,009	295,356	564,566	92.3	47,093	36,468	—49,065	—133,396
	9 mos.	548	5,483,941	199,640	6,283,131	854,385	1,281,993	199,279	3,488,289	6,075,999	96.7	207,132	364,797	—772,069	—501,056
New York, Susquehanna and Western	Sept.	120	241,060	35,941	290,385	22,432	34,569	4,294	122,876	199,174	68.6	91,211	19,776	45,694	81,289
	9 mos.	120	3,016,454	355,179	3,498,444	303,586	324,373	42,938	1,317,320	2,137,117	61.1	1,361,327	415,062	499,880	705,484
Norfolk & Western	Sept.	2,161	9,607,741	1,119,488	11,037,817	1,482,347	2,474,288	166,407	2,817,412	7,285,262	66.0	3,752,555	2,688,709	1,886,054	1,986,336
	9 mos.	2,159	99,928,980	10,321,232	113,572,148	13,278,425	23,056,550	1,549,140	27,098,011	68,000,309	59.9	45,571,839	34,065,530	18,518,564	19,382,678
Norfolk Southern	Sept.	727	495,741	19,717	535,354	160,328	75,521	31,323	204,471	499,379	93.3	35,975	6,646	—6,900	74,925
	9 mos.	727	5,389,522	228,675	5,795,641	1,376,282	727,849	278,770	2,025,328	4,674,569	80.7	1,121,072	435,248	419,887	574,332
Northern Pacific	Sept.	6,873	10,885,960	1,622,406	13,499,501	2,443,044	2,366,679	183,299	3,774,768	9,295,662	68.9	4,203,839	541,997	3,843,055	2,293,716
	9 os.	6,870	87,886,524	14,398,974	111,567,497	19,294,755	23,281,497	1,719,671	34,544,263	83,684,568	75	27,882,929	12,360,098	18,599,747	16,690,862
Northwestern Pacific	Sept.	331	495,205	12,283	532,857	175,876	69,702	4,388	195,887	454,017	85.2	78,840	28,578	16,537	121,348
	9 mos.	331	4,425,911	152,858	4,813,182	1,499,571	571,659	28,237	1,667,011	3,841,621	79.8	971,561	244,853	466,449	424,191
Oklahoma City-Ada-Atoka	Sept.	132	61,510	204	62,807	21,709	3,650	1,008	23,185	52,651	83.8	10,156	—1,844	—2,033	29,639
	9 mos.	132	908,895	2,626	920,975	215,809	37,802	10,496	237,036	536,427	58.2	384,548	139,914	119,138	263,991
Pennsylvania	Sept.	10,112	45,065,937	21,554,889	721,114,367	9,847,478	14,997,663	1,003,946	29,717,899	58,476,787	81.1	13,637,580	6,185,113	6,991,866	9,555,769
	9 mos.	10,112	480,127,272	189,474,767	726,159,196	86,655,170	139,489,388	9,417,759	300,176,252	561,747,625	77.4	164,411,571	77,747,200	78,862,363	82,372,197
Long Island	Sept.	376	1,110,376	2,488,008	3,783,447	535,069	528,522	38,201	1,661,431	2,824,693	74.7	958,754	533,911	149,970	276,810
	9 mos.	376	10,514,962	22,575,527	34,896,957	4,543,900	4,762,971	198,314	15,189,479	25,266,183	72.4	9,630,774	4,390,742	2,788,334	2,485,606
Pennsylvania-Reading Seashore Lines	Sept.	392	393,454	453,405	893,910	145,798	88,170	9,622	489,517	757,495	84.7	136,415	107,324	—107,424	30,785
	9 mos.	392	4,223,078	4,761,502	9,329,221	1,416,289	881,806	75,534	4,386,796	6,966,771	74.7	2,362,450	912,109	307,555	766,879
Pere Marquette	Sept.	1,949	2,798,352	256,685	3,291,510	686,668	816,840	81,099	1,400,694	3,158,858	96.0	132,652	—142,056	236,249	399,513
	9 mos.	1,949	36,142,894	2,671,666	40,925,625	7,225,486	7,794,069	735,246	15,056,048	32,367,810	79.1	8,557,815	2,861,259	4,979,361	3,836,981
Pittsburg & Shawmut	Sept.	97	116,694	.....	117,675	38,051	28,568	1,296	35,546	108,977	92.6	8,698	4,107	447	23,462
	9 mos.	97	1,093,273	.....	1,099,898	253,511	211,949	16,653	324,722	854,625	77.7	245,273	41,198	181,762	189,954
Pittsburgh & West Virginia	Sept.	136	413,671	.....	431,963	92,657	96,521	24,142	139,589	376,258	87.1	55,705	—10,566	80,944	221,976
	9 mos.	136	5,309,701	104	5,469,772	921,841	979,658	218,188	1,442,288	3,809,119	69.6	1,660,053	726,377	1,114,571	1,308,102
Pittsburg, Shawmut & Northern	Sept.	190	59,906	.....	60,646	17,935	13,381	881	32,612	68,656	113.2	—8,010	5,316	—18,931	—10,320
	9 mos.	190	778,292	.....	790,484	193,218	167,108	9,411	371,006	787,458	99.6	3,026	56,839	—112,755	—62,621
Reading	Sept.	1,366	6,889,683	879,279	8,178,574	1,449,809	1,993,999	81,690	3,071,697	6,828,349	83.5	1,350,225	380,737	1,096,596	987,085
	9 mos.	1,367	72,203,830	8,209,918	84,333,018	11,442,948	18,516,076	777,137	29,529,978	62,282,043	73.9	22,050,975	11,620,722	10,483,581	10,710,440
Richmond, Fredericksburg & Potomac	Sept.	118	972,633	1,157,647	2,298,551	1,091,959	2,311,260	14,149	708,552	4,230,295	184.0	—1,931,744	Cr.1,433,197	—603,964	261,506
	9 mos.	118	12,859,138	10,473,608	2,548,023	3,243,166	5,094,607	129,102	7,315,438	16,757,664	65.8	8,723,359	5,930,193	1,592,749	2,488,638
Rutland	Sept.	407	290,334	72,073	430,520	68,976	85,535	12,920	220,613	402,155	93.4	28,365	24,286	—1,525	43,296
	9 mos.	407	2,662,964	587,622	3,890,857	624,109	772,248	113,648	2,022,267	3,668,530	94.3	222,327	238,708	—43,048	44,150
St. Louis-San Francisco	Sept.	4,645	5,992,031	1,754,757	8,445,843	1,259,829	1,716,230	170,732	3,113,950	6,617,996	78.4	1,827,847	704,828	1,002,152	1,619,163
	9 mos.	4,646	63,762,455	15,986,378	86,463,736	11,490,509	15,519,509	1,536,446	28,070,574	59,798,005	69.2	26,665,731	14,012,981	12,600,743	12,365,929
St. Louis, San Francisco & Texas	Sept.	160	231,399	44,143	289,613	45,328	31,194	11,221	105,628	201,062	69.4	88,551	37,709	24,926	11,315
	9 mos.	160	2,482,750	366,785	2,945,550	336,747	299,815	104,792	1,031,643	1,842,084	62.5	1,103,466	568,318	286,128	326,833

Table continued on next left-hand page

One era ends—another begins..

THE years closely following 1910 saw an important development in railroading. The fireman no longer literally moved trains by his muscles. He lay aside his scoop and began to spend more time on the cab seat, for stokers were coming into general use.

About this time too, HUNT-SPILLER GUN IRON was receiving wide acceptance as a preferred material for valve and cylinder bushings, packing, and other vital locomotive parts.

Since 1910, locomotives have improved; power has increased, also monthly mileage, and the weight of trains. Many an outmoded railroad practice has been modified or abandoned, but 76 important railroads which were using HUNT-SPILLER GUN IRON 35 years ago still depend upon its superior wearing qualities. Which to our way of thinking, is conclusive proof that you can place complete reliance on any of the parts listed below.

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Cylinder Bushings	Crosshead Shoes	Dunbar Sectional Type Packing
Cylinder Packing Rings	Hub Liners	Duplex Sectional Type Packing
Pistons or Piston Bull Rings	Shoes and Wedges	for Cylinders and Valves
Valve Bushings	Floating Rod Bushings	(Duplex Springs for Above
Valve Packing Rings	Light Weight Valves	Sectional Packing)
Valve Bull Rings	Cylinder Liners and Pistons	Cylinder Snap Rings
	for Diesel Service	Valve Rings, All Shapes

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF SEPTEMBER AND NINE MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income: 1945	1944
St. Louis Southwestern Lines	Sept.	1,607	$3,447,505	$308,572	$3,903,918	$1,019,895	$1,299,198	$119,606	$1,115,701	$3,684,822	94.4	$219,096	Cr.1,298,798	$1,327,319	$1,089,780
	9 mos.	1,607	48,826,678	2,585,402	52,923,733	6,114,367	6,387,146	961,259	12,004,076	26,704,445	50.5	26,219,288	$15,115,356	8,432,985	7,807,624
Seaboard Air Line	Sept.	4,168	5,221,223	3,235,867	9,373,568	1,418,970	1,891,894	232,430	3,089,222	7,079,817	75.5	2,293,751	510,000	1,540,478	1,826,448
	9 mos.	4,170	63,832,633	29,446,469	100,144,007	13,891,581	17,215,517	2,209,053	30,940,108	68,552,357	68.5	31,591,650	13,775,000	14,414,336	16,981,798
Southern Railway	Sept.	6,505	11,408,784	4,622,785	17,222,903	2,439,893	3,406,997	269,607	5,982,881	12,779,588	74.2	4,443,315	2,739,499	1,453,133	2,552,095
	9 mos.	6,505	136,400,281	43,987,754	192,098,415	24,085,047	32,280,774	2,395,662	56,255,397	121,149,545	63.1	70,948,870	46,379,586	21,796,548	24,718,365
Alabama Great Southern	Sept.	315	780,266	379,930	1,242,376	152,598	267,248	28,134	465,982	966,765	77.8	275,611	168,423	93,442	147,208
	9 mos.	315	10,953,251	3,575,274	15,508,780	1,727,062	2,792,531	253,850	4,820,173	10,132,259	65.3	5,376,521	3,665,034	1,220,238	1,473,478
Cincinnati, New Orleans & Texas Pacific	Sept.	337	1,668,681	656,297	2,456,955	251,533	616,179	44,012	723,171	1,727,244	70.3	729,711	496,296	316,653	376,064
	9 mos.	337	19,567,928	5,295,750	26,312,558	2,885,921	5,948,151	376,528	7,242,837	17,290,959	65.7	9,021,599	6,263,161	3,366,080	3,723,917
Georgia Southern & Florida	Sept.	397	218,770	249,402	520,399	61,557	60,062	2,564	177,210	321,196	61.7	199,203	119,762	49,647	51,170
	9 mos.	397	2,473,639	2,124,992	5,073,467	642,384	690,682	25,431	1,586,297	3,111,849	61.3	1,961,618	1,066,547	589,286	520,790
New Orleans & Northeastern	Sept.	204	511,281	202,303	757,340	117,450	106,216	14,349	217,738	492,143	65.0	265,197	164,802	39,651	104,279
	9 mos.	204	6,907,251	1,789,653	9,163,439	1,238,573	1,089,702	129,570	2,272,881	5,088,159	55.5	4,075,280	2,524,306	872,611	883,965
Southern Pacific	Sept.	8,247	24,630,717	9,542,808	37,430,649	6,727,602	11,865,252	696,595	13,172,090	34,619,175	92.5	2,811,474	Cr. 496,646	1,576,502	4,918,878
	9 mos.	8,247	258,113,029	79,861,634	370,096,717	51,214,567	72,638,872	6,007,951	118,628,963	268,048,612	72.4	102,048,105	60,788,325	26,781,265	30,785,091
Texas & New Orleans	Sept.	4,322	5,860,236	2,078,363	8,599,955	1,487,801	1,586,858	151,832	2,807,213	6,428,137	74.7	2,171,818	32,959	1,754,053	—1,157,771
	9 mos.	4,328	68,333,823	18,563,563	92,632,094	12,747,675	12,620,459	1,429,712	26,404,402	56,668,011	61.2	35,964,083	20,076,569	11,094,277	9,506,815
Spokane, Portland & Seattle	Sept.	944	1,602,531	114,810	1,829,338	466,279	238,934	13,553	579,153	1,359,252	74.3	470,086	Cr. 361,810	590,413	433,761
	9 mos.	944	18,088,274	1,474,946	20,661,139	5,252,296	2,072,100	129,098	5,709,047	13,751,091	66.6	6,910,048	1,813,855	3,525,975	2,999,647
Tennessee Central	Sept.	286	245,268	18,855	282,088	53,420	54,146	6,694	113,191	241,274	85.5	40,814	22,730	2,350	50,242
	9 mos.	286	2,485,991	277,981	2,922,628	560,943	528,329	61,565	1,065,248	2,349,460	80.4	573,168	232,923	196,438	402,943
Texas & Pacific	Sept.	1,873	3,541,321	1,367,520	5,381,471	872,052	598,755	108,026	1,527,144	3,384,717	62.9	1,996,754	694,682	1,069,161	553,429
	9 mos.	1,879	41,184,097	13,560,835	59,609,248	7,940,092	7,719,206	1,034,209	14,845,250	34,027,755	57.1	25,581,493	15,787,652	7,741,109	5,015,843
Texas Mexican	Sept.	162	148,545	556	171,976	25,919	19,193	3,819	41,600	101,815	59.2	70,161	19,215	41,528	—48,714
	9 mos.	162	1,489,618	6,118	1,670,449	385,393	159,759	37,169	432,410	1,112,250	66.6	558,199	181,651	283,525	460,845
Toledo, Peoria & Western	Sept.														
	9 mos.														
Union Pacific System	Sept.	9,778	28,936,187	8,526,795	40,630,846	7,015,706	13,741,515	707,004	11,960,616	35,378,114	87.1	5,252,732	2,197,474	1,509,142	4,144,214
	9 mos.	9,780	288,421,320	69,643,618	388,085,425	49,171,474	76,897,469	5,484,020	107,224,762	255,696,412	65.9	132,389,013	92,268,131	29,786,316	27,782,703
Utah	Sept.	111	121,773	.....	121,814	16,219	37,699	540	36,907	95,581	78.5	26,233	18,015	13,592	14,980
	9 mos.	111	1,028,607	.....	1,028,875	135,912	349,670	4,885	313,704	843,508	82.0	185,367	126,414	121,587	95,151
Virginian	Sept.	656	2,012,787	8,696	2,079,381	281,719	660,798	26,834	471,561	1,494,479	71.9	584,902	212,400	498,022	573,397
	9 mos.	657	21,538,447	87,658	22,446,032	2,506,834	6,122,891	241,584	4,866,818	14,254,967	63.5	8,191,065	3,184,400	6,114,941	5,414,913
Wabash	Sept.	2,393	5,097,641	778,907	6,297,437	1,091,212	1,031,080	172,826	2,340,429	4,916,246	78.1	1,381,191	415,308	625,064	635,761
	9 mos.	2,393	59,126,611	7,632,919	70,969,942	9,628,159	9,473,837	1,605,854	22,743,975	45,754,796	64.5	25,215,146	14,749,967	6,842,634	6,673,086
Ann Arbor	Sept.	294	428,942	7,656	457,211	71,198	93,329	16,475	231,177	394,725	86.3	62,486	32,274	24,974	49,699
	9 mos.	294	4,330,601	97,624	4,595,386	593,927	827,033	150,407	1,867,448	3,550,237	77.3	1,045,149	492,018	526,197	514,219
Western Maryland	Sept.	840	2,269,786	51,379	2,417,382	422,153	616,865	45,128	716,491	1,898,754	78.5	518,628	125,000	463,196	415,738
	9 mos.	840	25,590,819	354,079	26,678,903	4,107,564	5,584,405	421,343	7,064,509	18,079,174	67.8	8,599,729	4,353,000	4,783,488	5,055,947
Western Pacific	Sept.	1,195	3,577,585	792,804	4,617,889	791,449	678,307	92,151	1,395,595	3,116,721	67.5	1,501,168	879,009	407,781	772,212
	9 mos.	1,195	36,796,736	6,535,800	44,867,275	6,079,429	6,138,117	834,276	12,639,142	27,539,139	61.4	17,328,136	10,690,438	4,847,841	5,187,228
Wheeling & Lake Erie	Sept.	507	1,683,797	.....	1,770,534	330,396	396,737	41,619	596,162	1,423,021	80.4	347,513	278,647	244,778	289,209
	9 mos.	507	19,166,546	25	19,876,962	2,238,775	3,654,345	381,224	5,814,580	12,565,683	63.2	7,311,279	6,327,615	2,604,104	2,480,793
Wisconsin Central	Sept.	1,130	1,471,514	97,063	1,743,189	273,557	725,708	40,743	695,883	1,795,086	103.0	—51,897	105,902	—222,750	237,111
	9 mos.	1,130	13,757,403	860,252	15,975,402	2,071,833	2,857,014	376,191	6,245,696	12,141,249	76.0	3,834,153	1,947,101	1,646,384	2,474,821

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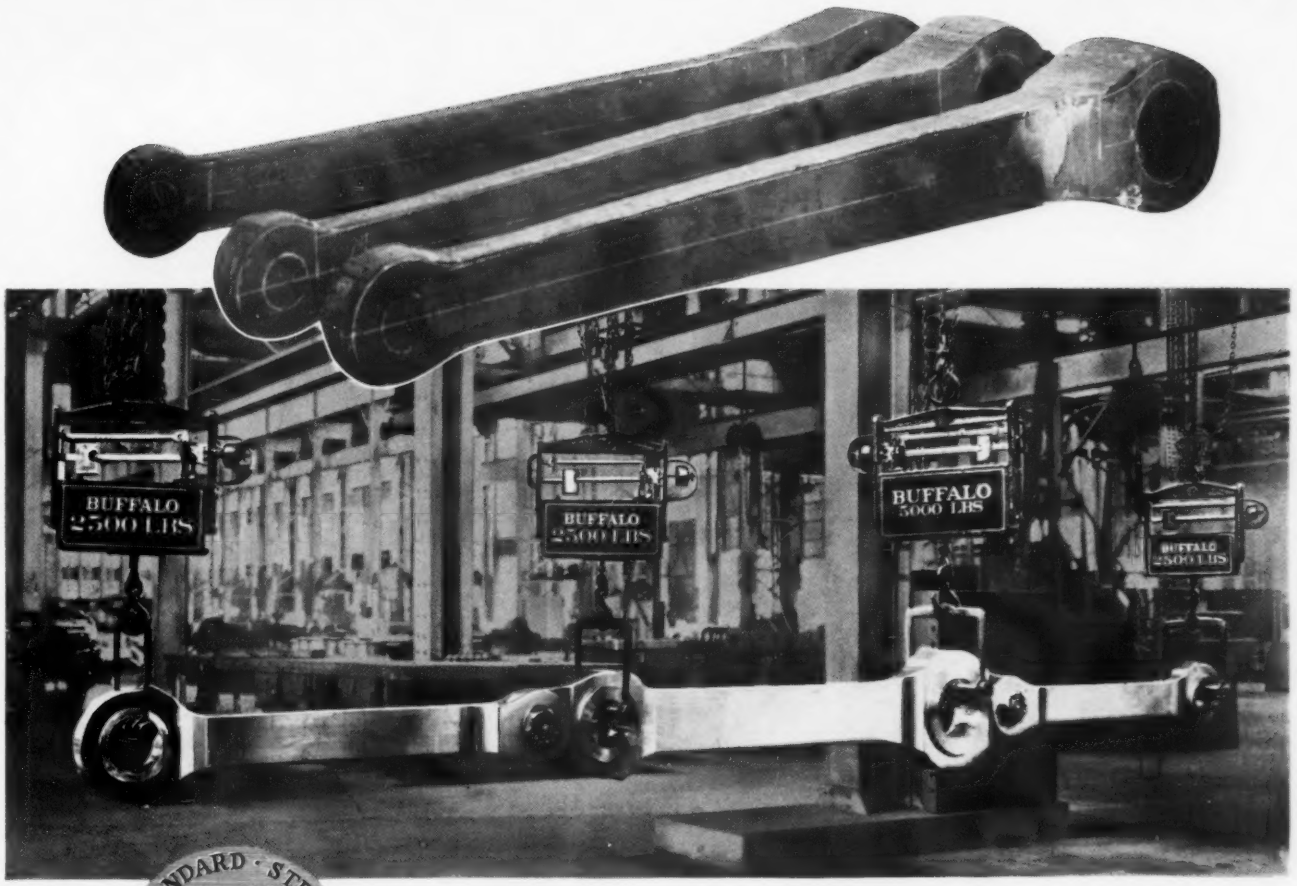

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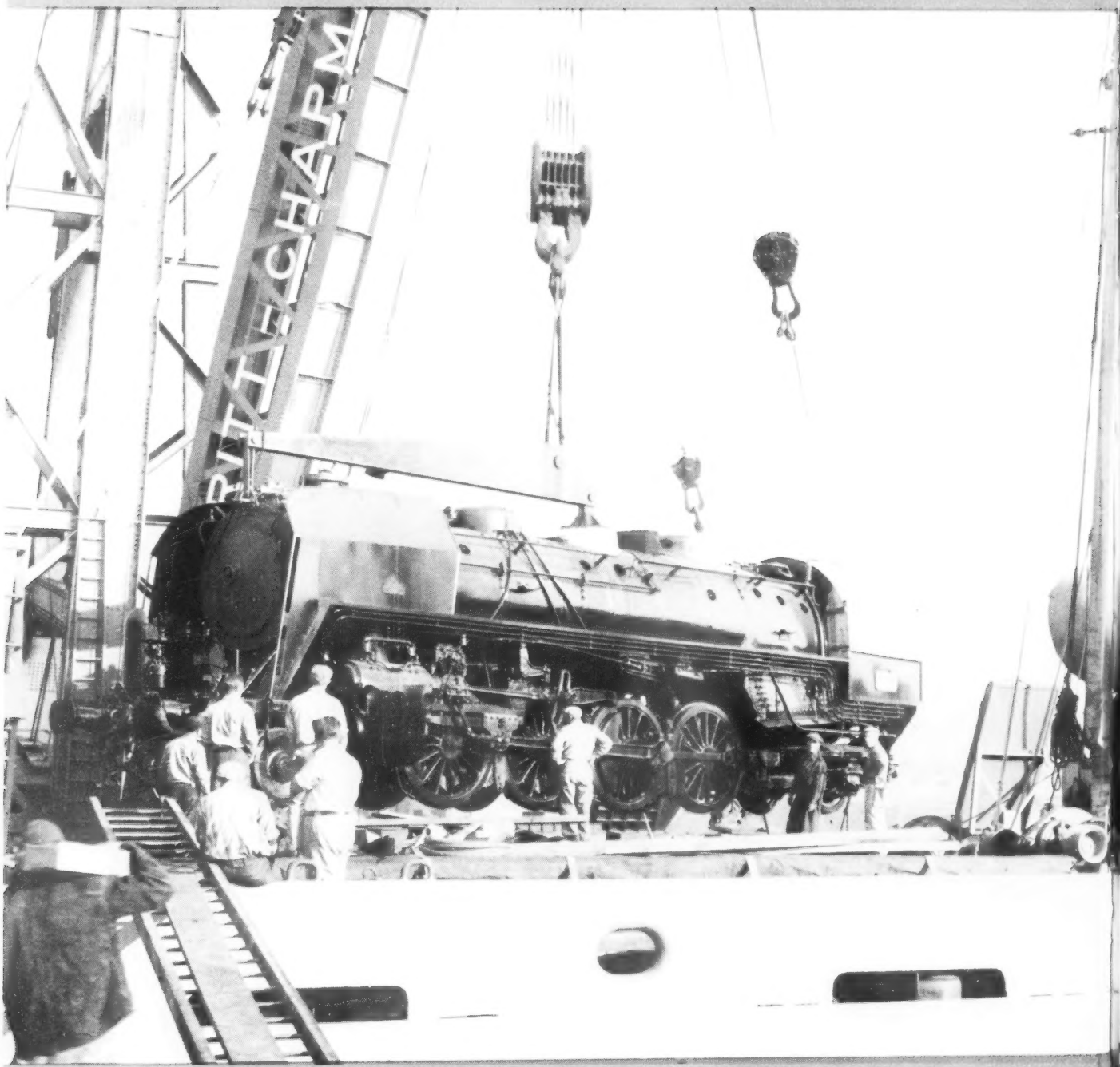
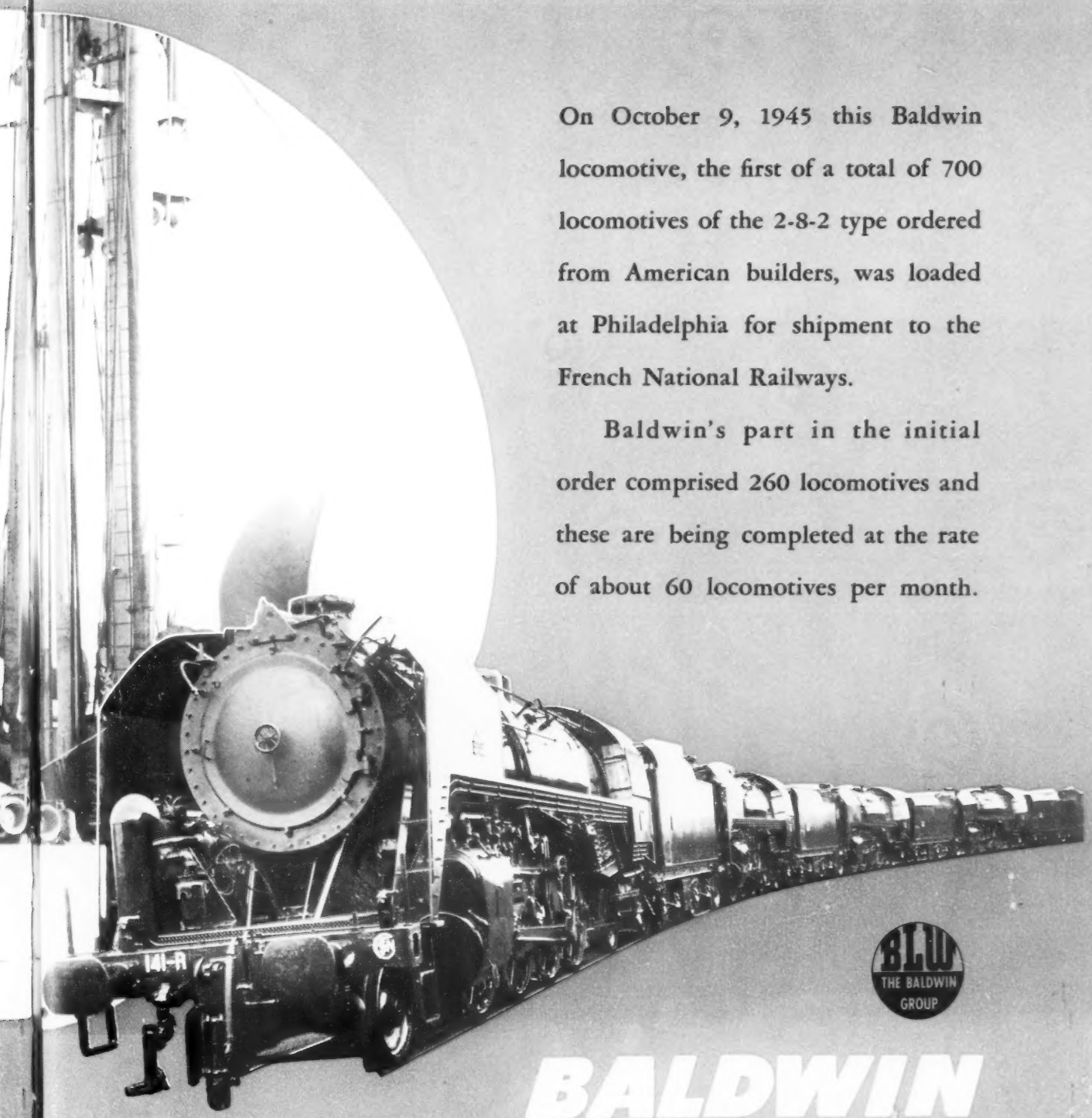


A 2-8-2 type locomotive being hoisted on board ship at Philadelphia for shipment to France.

for France

On October 9, 1945 this Baldwin locomotive, the first of a total of 700 locomotives of the 2-8-2 type ordered from American builders, was loaded at Philadelphia for shipment to the French National Railways.

Baldwin's part in the initial order comprised 260 locomotives and these are being completed at the rate of about 60 locomotives per month.



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BALDWIN

LOCOMOTIVES

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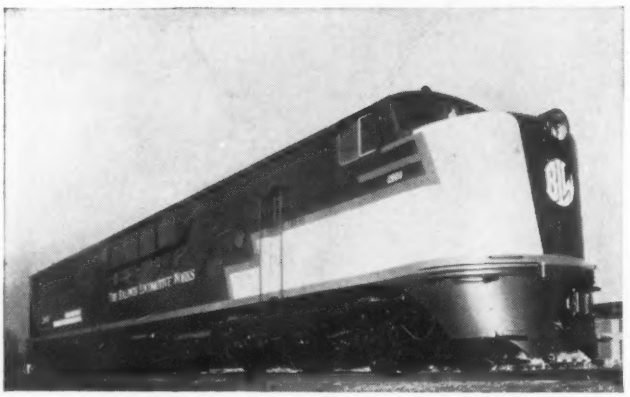

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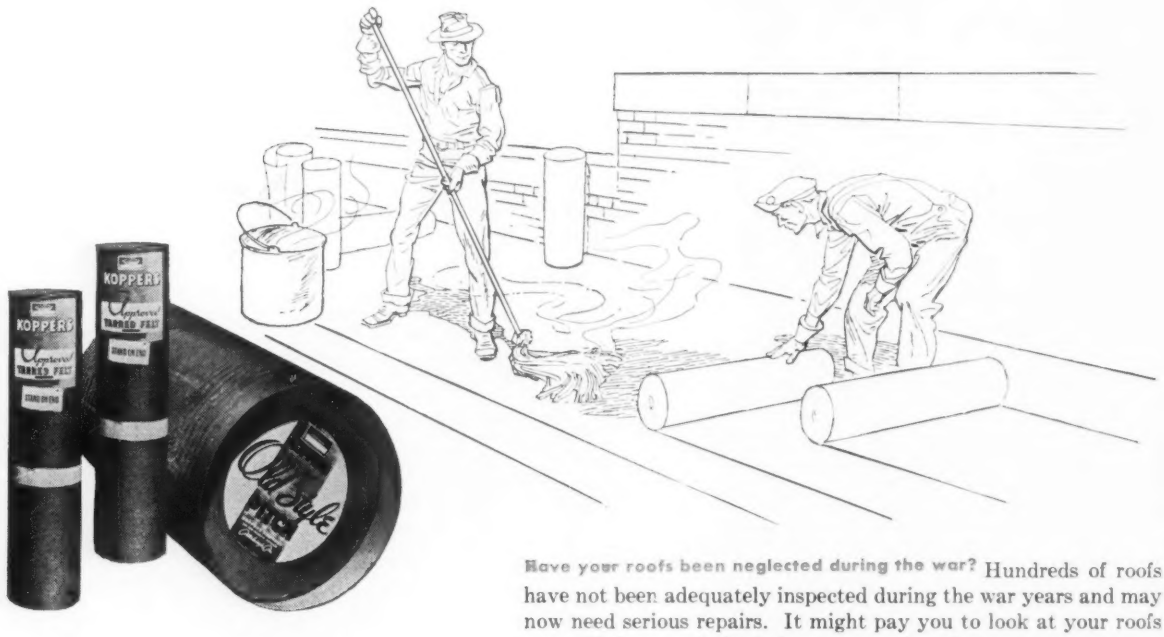

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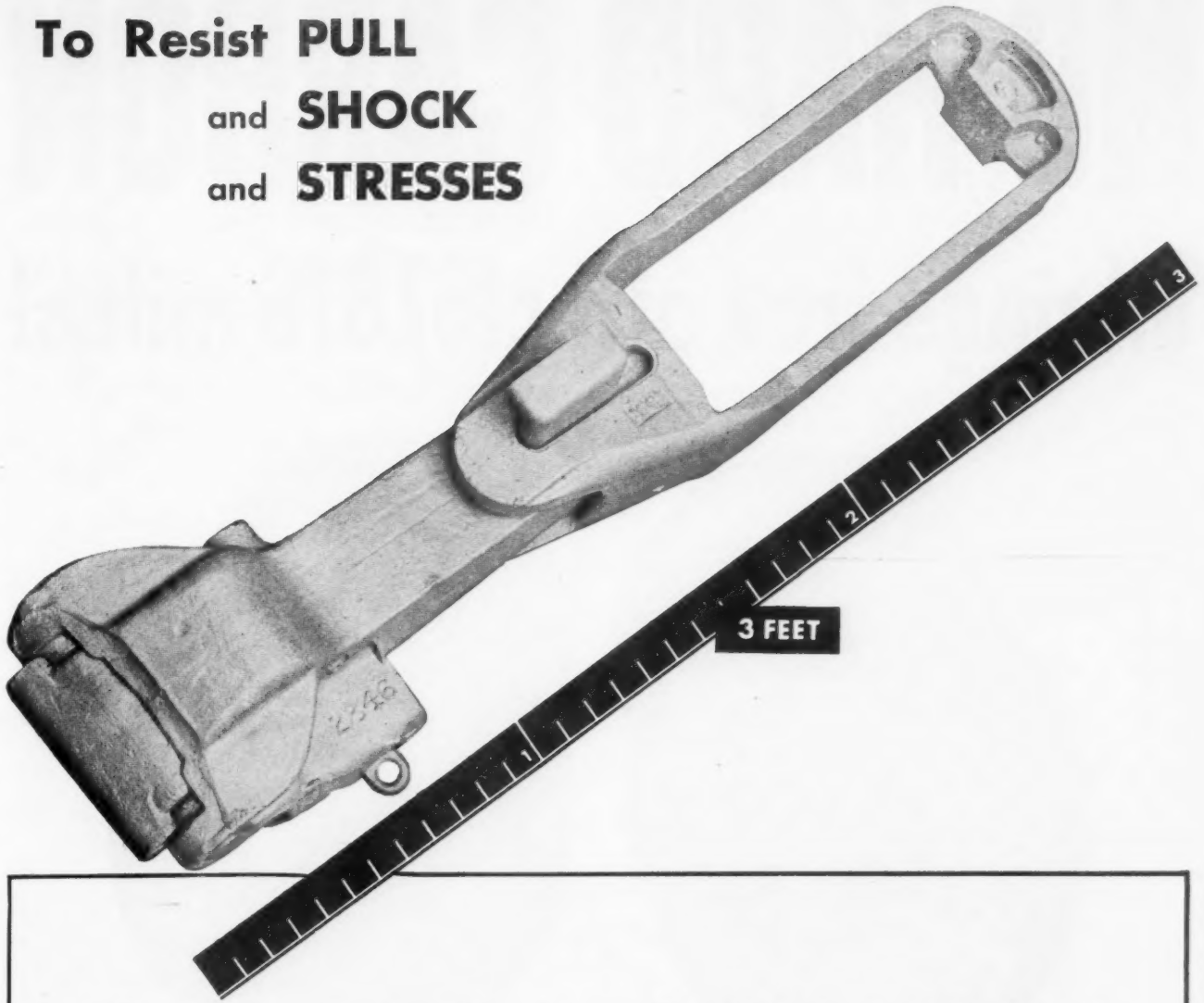

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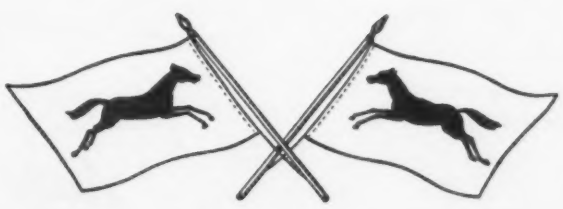

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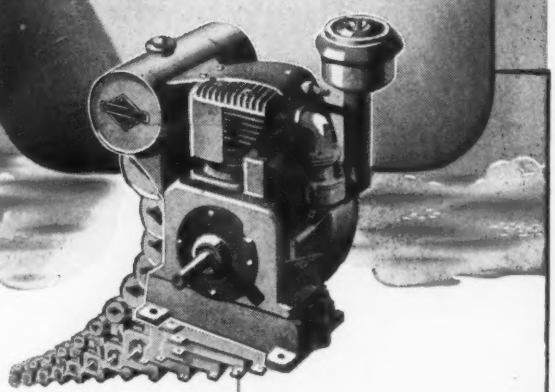

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fig. 124

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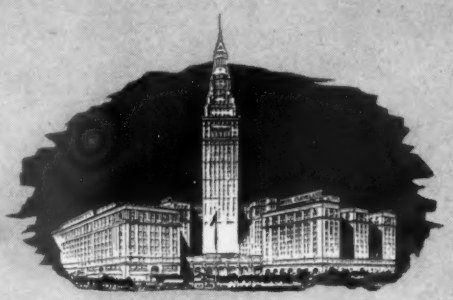

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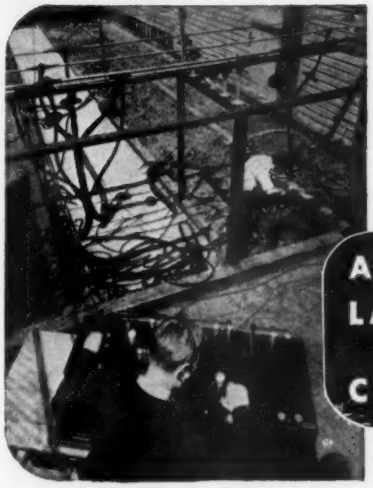

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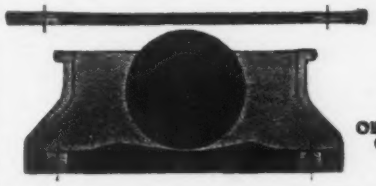

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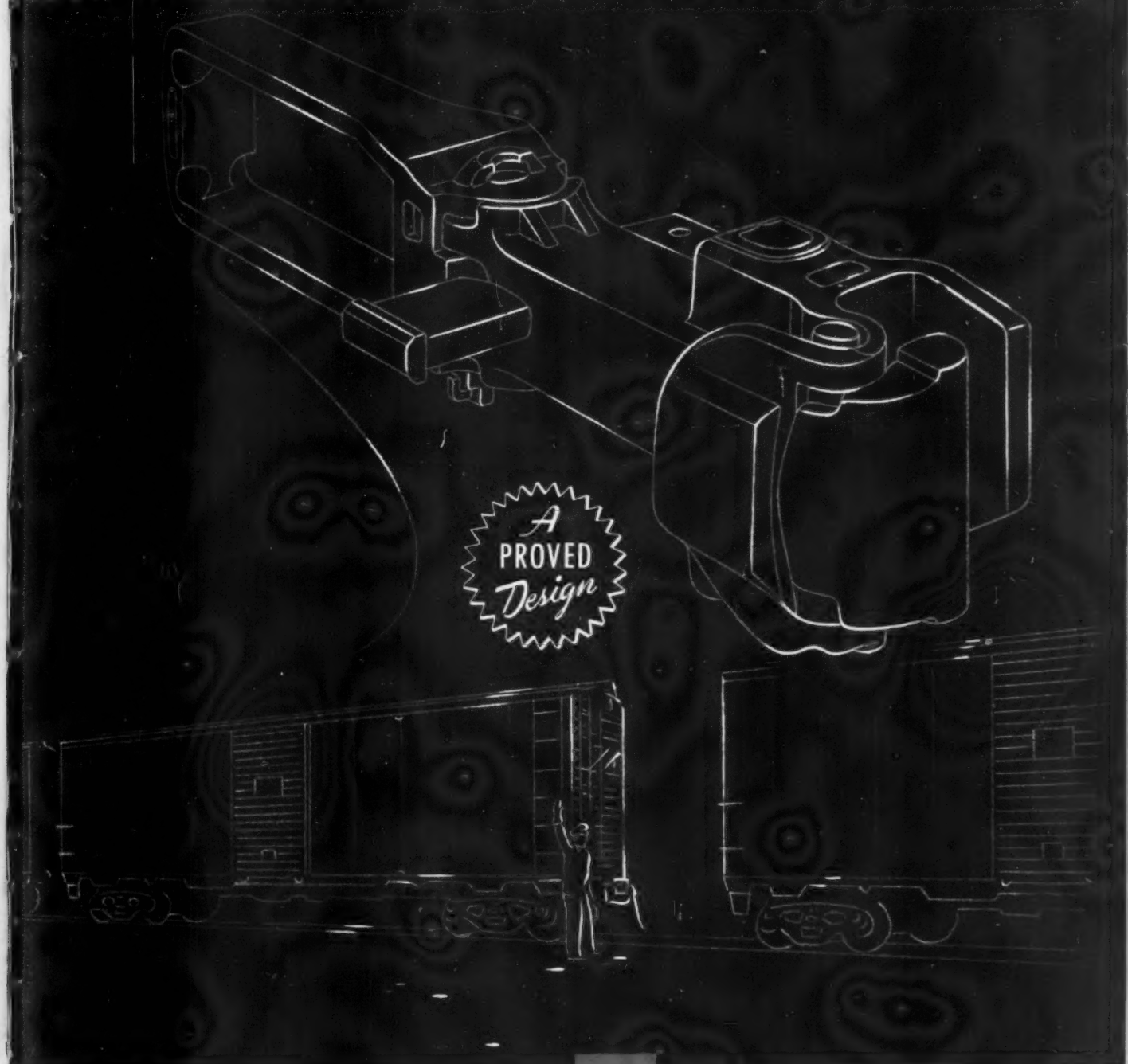

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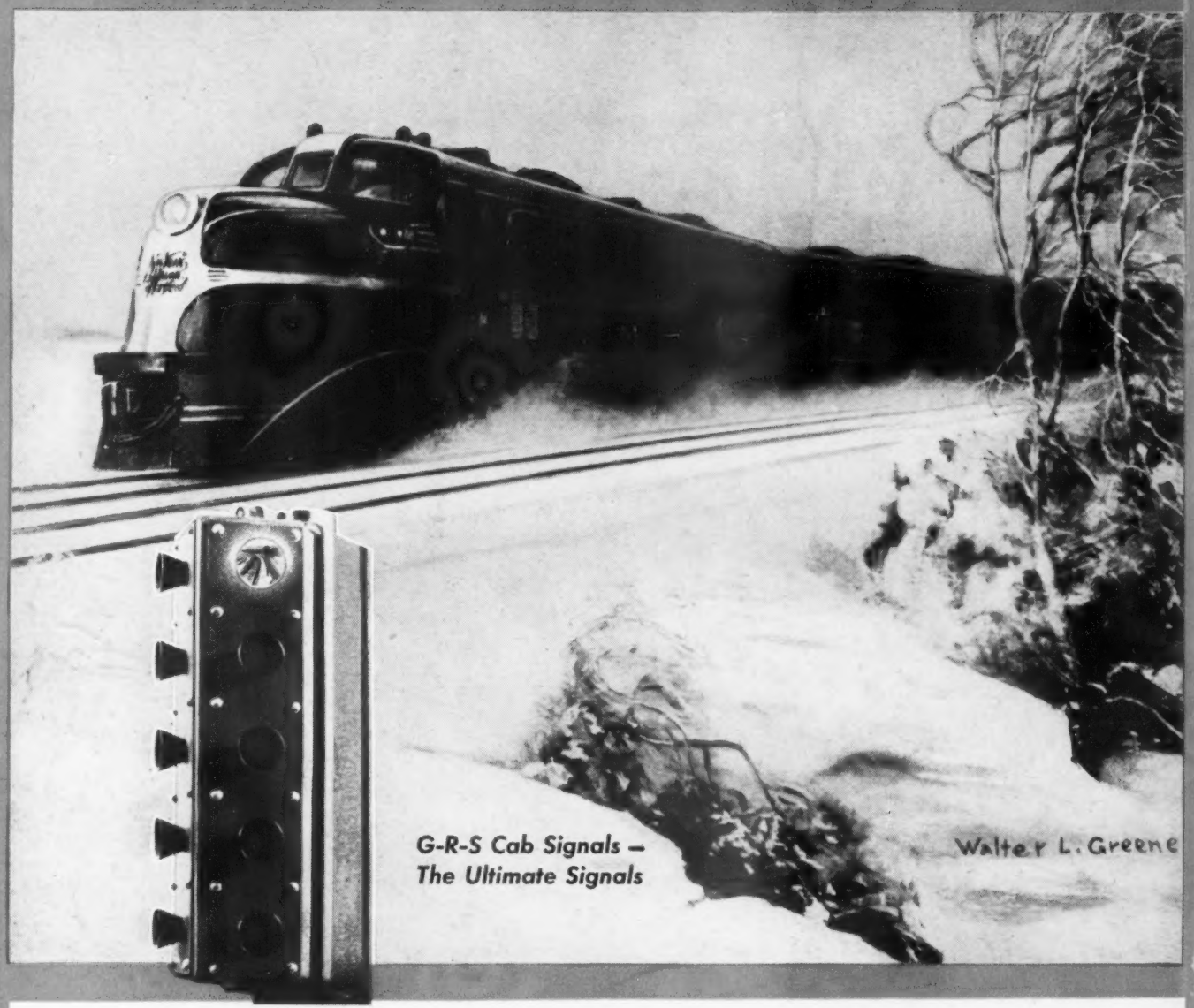

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